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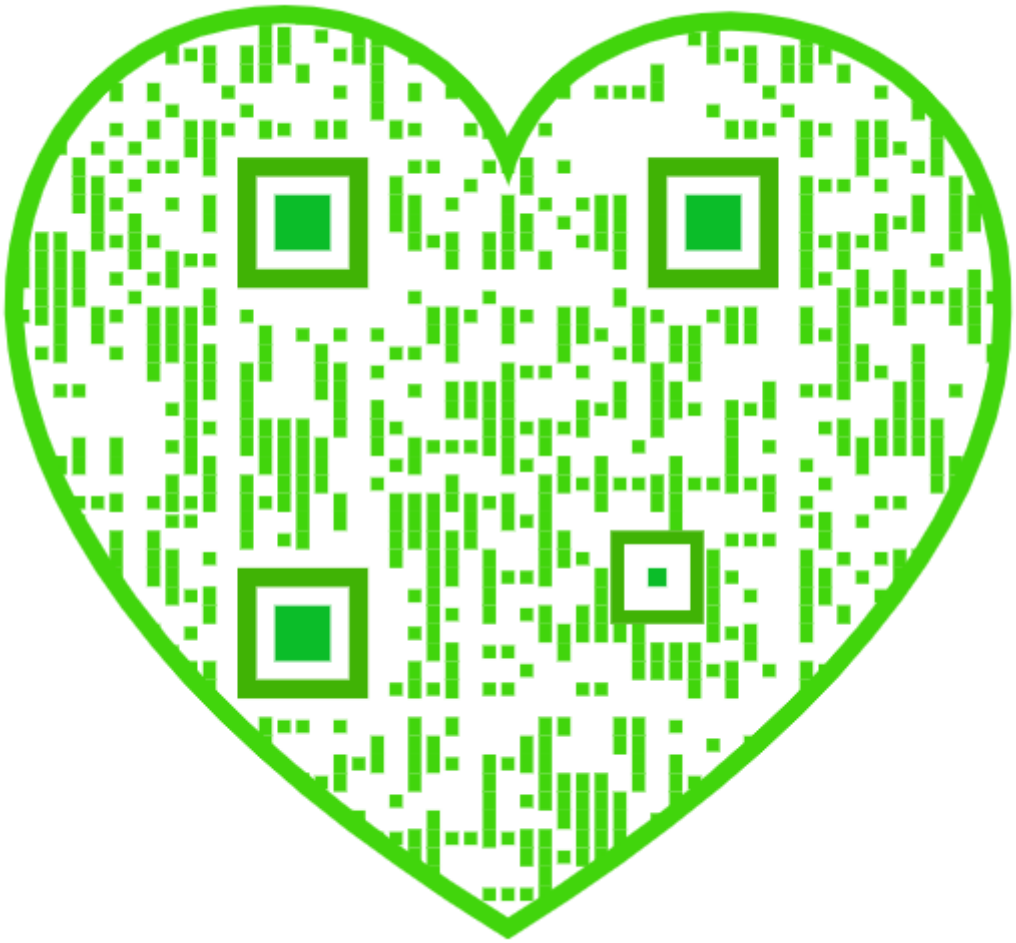
HOW TO ESTIMATE ON PRINTING

HARRY M. BASFORD



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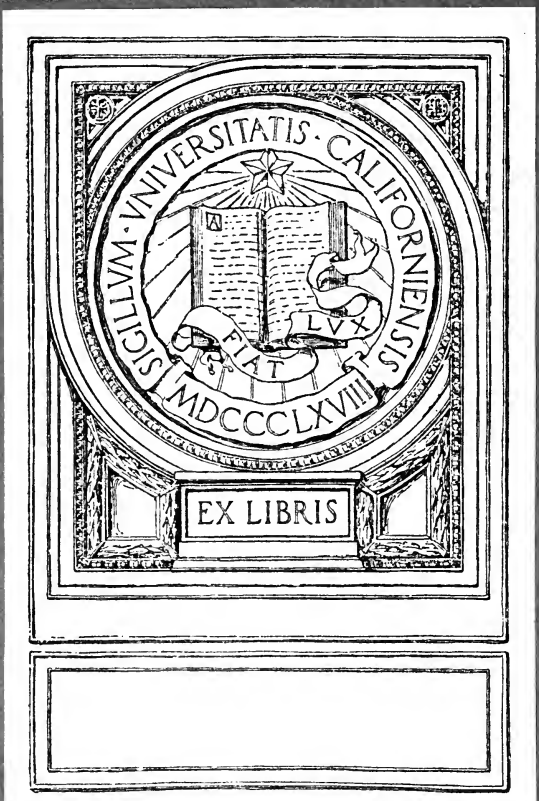

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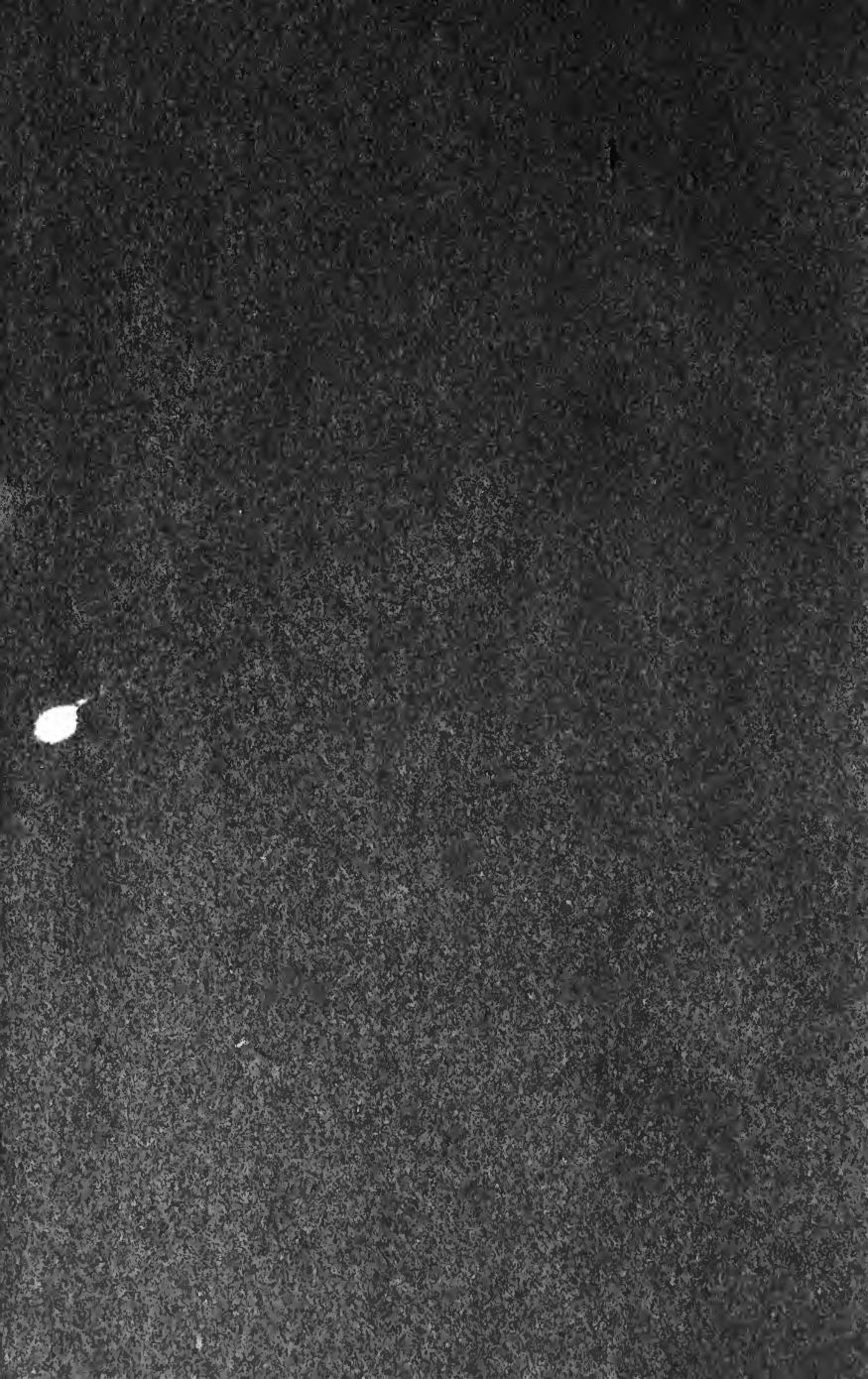

HOW TO ESTIMATE ON PRINTING

By

HARRY M. BASFORD

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CHAPTER ONE

WHAT IS AN ESTIMATE?

Some Suggestions on Finding Job Costs and Quoting Prices on Printing

AN ESTIMATE is a statement of the probable cost of a job of printing. It is usually made by an estimator in the house which he represents, or by a salesman often in the presence of the prospective customer. In the first case, the estimator has the advantage of the tools and tables of his trade with which to work, and he usually has more time in which to prepare the estimate and to make the price which is to be quoted. In the other case, the estimate is necessarily made more hurriedly and is less apt to be as correct as the one made in the office. For this reason, many large printing houses are discouraging the custom of salesmen making estimates upon the work which they sell. The better plan seems to be for the salesmen to secure the specifications of the work of their customers for the office estimator to use in making the estimate and the price.

An essential thing for the estimator is a correct blank for recording the cost of various kinds of work entering into the job. These blanks can be bound in books of one hundred or more leaves or made in loose-leaf form for use in a bindery. Both styles have their advantages. In using the bound book, it is convenient to have the form printed on the right-hand page, leaving the left-hand page blank for figuring the details of the job, and file each book away when filled. With the loose-leaf book, old forms can be removed and filed in the transfer binder for future reference, keeping the current estimates on the desk.

In the interests of accuracy, the estimate blank should correspond with the form of the cost-finding system in use in the plant, and as the standard cost-finding system of the United Typothetæ of America has proven successful for ascertaining factory costs, the estimate blank may conform very closely to this system. It is not necessary that every possible item of cost should be printed on the blank, but the more common kinds of work should be enumerated and the blanks should be as complete as possible to assist the estimator so that no items may be overlooked or forgotten in the estimate.

An important item to remember in estimating is the quality of work that is demanded by the customer. If the estimate man can get a correct idea of just the kind of a job that is wanted, he can make a more intelligent estimate and a more correct price than he can without this information; salesmen and office estimators should work in harmony to this end, which is to the interest of

all parties concerned. The character of the work produced by the shop should also be considered. For instance, some plants make a specialty of commercial printing, and when called upon to produce an unusually fine booklet or piece of advertising, the cost of this work will run higher than would often be expected, on account of the workmen being unfamiliar with the class of work required. For the same reason prices on law briefs, railroad tariffs, etc., show a great variation, and one shop can often produce a job of this kind at a profit with a price as low or lower than the cost in some other shop. A correct understanding of this condition will materially assist the estimator in his work and will add to the business and profit of the house which he represents.

The estimator should have access to the job checks and all records of the house, that he may frequently refer to these to assist him in his work. Conditions in the printing trade are changing and costs will vary from month to month necessarily. The estimator should keep in close touch with these changing conditions, and be able to take advantage of everything which tends to lower the price of work in any department.

The charm of the printing business lies in the variety of work, and no two jobs are ever exactly alike. There is, however, a similarity in the work, which is of great benefit in estimating, and a puzzling point of probable cost can often be settled by reference to the records of some other similar job which has been completed.

Observation, the habit of reference and experience are three requisites which make for a successful estimate man,

and a person who is following this rather arduous occupation will succeed or fail on these three points. Observation is largely a matter of training, and the habit of reference is something any one can acquire; experience comes with the years, and the man who can give a correct estimate on the cost of a piece of printing by merely looking at it can only do so by virtue of his years of experience in the business.

Estimating on out of town work is perhaps the hardest that comes to the estimator's table. He is usually required to be a good guesser and must quote a price by mail from information which is often lacking in important details, and is seldom as complete as he would wish it. This is another place, however, where his experience will stand him in good hand, and by being conservative he may succeed in this, the most difficult part of his work. An important point to remember in estimating on work for out of town customers is to base the estimate on paper stock of which samples should be submitted, and on a style of work which is definitely described or shown by sample. The point is to make a price on the job as the plant expects to deliver it, instead of on the faulty specifications which may be contained in the letter of inquiry. This will obviate misunderstandings and a possible loss, and is the one successful method, I believe, of quoting prices by mail to out of town patrons.

In estimating a job, I lay the specifications before me, select the stock and enter on the blank the quantity of paper, size, weight, number of sheets and cost; then I take up the composition—the machine composition first,

if there is any, then the hand work, the proof-reading and distribution and make-up, in this order. On the ordinary small job the lock-up comes next, then the press-work and ink and last the bindery work. There are, of course, many other items that may enter into a job, but these enumerated will be found in nearly every job and form the principal basis of an estimate. When the total cost has been found, I consider the job from a general standpoint and from the standpoint of the printers who I think are likely to bid on the same work. I check over the items to verify each one, and with all the information before me, make the price what seems right and proper, all things considered. The condition of work in the house must be known, the time of delivery which must be promised and other details of equipment, conflicting work which may be in the plant, etc., and all of these should enter into the price decided on, in some way.

The estimator is always confronted with the error of fixing the price too high to get the job or too low to show a profit, and he should to the best of his ability choose the happy medium of price, which will secure the work and also show a profit. This, of course, cannot always be done, but he should approximate this result as nearly as possible.

Now, to take up the items which enter into the ordinary job of commercial printing, such as letterheads, envelops, cards, etc. These items are the stock cutting and handling of stock, hand composition, lock-up and press-work, and often padding. Other items, such as proof-

reading, distribution and ink, delivery and wrapping can usually be eliminated from work of this kind, as the cost is so small as not to affect the total cost materially. Many houses have a schedule of prices on work of this class which can safely be followed in quoting prices, and are valuable in comparing with estimates made. It is not, however, with this class of work that the ordinary printer has much trouble.

Book and catalog work offer more difficulties in the way of making correct estimates. Work of this character usually amounts to more money and requires a more careful and detailed estimate. In addition to the items enumerated as entering into the cost of commercial work, book work requires that such items as proof-reading, distribution, slip-sheeting, cuts, alterations and corrections, and the various departments of bindery work be considered, and these are often difficult to estimate exactly. An important point to remember in estimating on catalog or book work is never to make an estimate without first seeing the copy. Don't take a customer's word for it that his copy is of a certain character or amount, but insist on seeing it for yourself. The matter of slip-sheeting must be considered, and a decision reached as to whether it will be necessary or not on the job, and the cuts to be used should be seen, if they are to be furnished by the customer, as old cuts often require a considerable amount of work to make them type-high before they can be used. The wrapping and delivery of work of this character is often important and will some times amount to a considerable sum of money in the esti-

mate. The probable changes that may be made by the customer on proofs should also be estimated, as it is more satisfactory to have as much of these alterations covered by the original estimate as possible.

Blank book work is difficult for many estimators to handle successfully. Some customers have a very vague idea of the kind of book they want, and their copy is often hard to follow. In my own experience I have found that a sheet showing pictures in colors of various styles of binding is a great help in dealing with customers. The matter of proof of ruling should be explained when required, and a charge should always be made for hand-ruled proofs. The finishing and lettering of books can only be estimated by knowing the amount of work of this character that is required, and the estimator should be furnished with this information.

Loose-leaf sheets come under the same general head as blank book work and should be treated accordingly.

Facsimile letter work is largely used in these days of extensive advertising campaigns, and the printer is often asked to compete with other methods of producing imitation typewritten letters. Careful investigation of the cost of this kind of work as shown by the cost records will give the best basis for making estimates on orders of this kind.

Edition books and case book work are not common to the small shop and an estimate on work of this kind should be most carefully made. For this reason, consultation with the foreman and heads of all departments will be of benefit to the estimator and the cost records on similar work should be frequently consulted.

Stock certificates and bonds may be classified together, because they emanate from the same class of patrons. The ordinary printer produces stock certificates by using a lithographed form, on which he prints the name of the company, etc., and these can usually be sold on the schedule basis, as the variation in the cost is very slight, and any change from the usual form is easily detected. Bonds are often produced in the same way, using lithographed forms. In making a price on bonds, an important point to remember is the way in which the coupons are to be attached to the bond. If they are to be stripped over the face of the bond the cost will be considerably higher than if they are left on the same sheet down one or both sides. The number of coupons indicating the number of changes is also important and should not be overlooked.

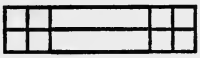
Tabular work, such as railroad tariffs, time cards, etc., is in a class by itself. Many large houses refuse to quote prices on this kind of work, which comes from the railroads and varies so much that a correct estimate is very difficult to make. An approximate price will bring much better results and if the railroad is a regular patron, it will usually be satisfied with this sort of a price.

Post cards and color work of all kinds are not common to the small shop, but in estimating a job of this kind, it should be remembered that color work costs more than black and white and that the press time is usually higher, on account of the accurate register required. High standards of color work have been set by the leading color printers of this country, and a customer is apt to expect equally as good results from his own printer.

Bank work, which includes pass books, checks, drafts, deposit slips, etc., is usually done by houses that make a specialty of this sort of work, but every printer is liable to have more or less work of this kind, and should be prepared to estimate the cost correctly, so as to sell at a profit. Pass books are made in standard sizes, and can usually be sold from a schedule price list covering various quantities of the different styles of books. Checks and drafts must be estimated on their merits, and deposit slips are usually sold at or below cost in connection with the sale of other goods. In printing deposit slips, the printer should try in every way to reduce his cost of manufacture to the lowest point for this reason.

Law books usually cost more to produce than other books of an equal number of pages, and must be very carefully proof-read and corrected. This should not be lost sight of in estimating this kind of work.

The square inch method of estimating has found considerable favor in some parts of the country. While it is not my intention to go into the details of this method, I may state that it is based upon the principle of dividing all printing into classes. The work to be estimated is compared with and consigned to one of these classes, and the cost estimated upon the number of square inches of composition according to the basis of cost in the class to which it belongs.



CHAPTER TWO

THEORETICAL AND ACTUAL COST

A Practical Comparison of Estimated Costs and the Real Cost of Production as Shown by Records

MANY estimators frequently find that there is a considerable difference between their estimated costs on work and the actual cost as shown by the time sheets and other records of production in the plant, and the enterprising, ambitious estimate man will endeavor to study this problem of the theoretical or probable cost as compared with the actual or working cost of a job, and to search out and find a reason for any discrepancy which may exist.

An estimate of the cost of a job will seldom conform exactly with the actual cost, but it should be made to approximate as nearly as possible to the real cost. While this will not be possible on a certain job, the records for a month or for a year should show that the average variation is slight.

The estimator figures the cost of a certain job, rightly thinking that it will be printed on a press of as small size

as possible to handle the sheet. The cost records may show that this job was printed on a cylinder press instead of upon a platen press. This may be brought about by an excess of work in the press-room at a certain time for the platen presses and a lack of work for the cylinder presses. This condition would make it more profitable, or perhaps mean a less loss to the house, to run the small job on the cylinder press rather than to let the cylinder remain idle and delay the delivery of the job in question. A good foreman will not make a practice of doing this, but will arrange his equipment as well as possible to take care of the work which comes to him in the most economical way; but good pressmen are not always easy to secure, and a printing house will not lay off a good workman because there is a scarcity of work for him for a few days, and it is better for such a pressman to run small jobs on cylinder presses for two or three days, rather than to have them remain idle, especially if much of the work has been promised for immediate delivery, as is often the case.

Overtime, night work, and Sunday work, which must be paid for at an advanced rate, will also affect the cost of a job and show a variance from the original estimate, which often cannot be avoided. The estimator should allow for this extra cost whenever possible, and by a little foresight overtime can usually be avoided, where it is not provided for in the estimate. It must also be remembered that cost records will very often show several hours of overtime recorded on one particular job, in order to make delivery on time on some other job. In other words,

overtime will show on the wrong job, and this fact must be considered, when it can be predicted by the estimator in making his estimate and fixing a price.

Overhead expense is an item which enters into the expenses of operating every department of a printing plant. This may amount to fifty per cent of the total operating expense. It may amount to one hundred per cent of the pay-roll of the department. This overhead expense is properly taken care of by the Standard Uniform Cost-finding System, as the cost per hour of work of every kind includes the overhead expense of this kind of work. There are cases, however, when it can be foreseen that a certain job will require a more than usual amount of non-productive time, or overhead expense, and when this can be foreseen, it should be provided for in the estimate. For instance, if it can be reasonably supposed that a certain job will require particular attention on the part of the foreman of the department, or any member of the office force, this job should bring a price somewhat higher than the ordinary run of work.

Selling expense must also be reckoned with, and if it is evident that a certain customer requires a great deal of time to secure and handle his orders, on account or making frequent changes in copy, or for other reasons, his work should bring a price that will cover such expense.

Office expense, advertising and other items must be covered in some way by the work turned out in the plant, and while these may be properly proportioned to each department, great care must be taken that they are so covered.

The non-producers of the plant, both in the office and factory, must not be overlooked, and their salaries or wages must be covered in some way in the basis of costs used by the estimator.

The cost records of a plant, particularly where an absolute cost system is in operation, are almost invaluable to the estimator. He should value and use them, in making his estimates, daily. A good plan to follow is never to quote a price on a re-order of a job until you have first examined the cost records when the work was done before. This plan will both make and save money for any house which follows it out, and will help the estimator materially in gaining a correct idea of the exact cost of work in the plant.

It should be remembered that new work printed from manuscript copy costs more to produce than a re-order of the same job, where you have the printed copy to work from. In quoting a price on a re-order this fact should redound to the profit of the house.

Co-operation with the heads of all departments is essential to the profitable conducting of a printing plant, and the estimator should have no hesitancy in conferring with foremen regarding the probable cost of work, and in taking up with them the cost of any job which may seem unreasonable by the showing of the cost records. It is not an admission of ignorance to confer with the foremen, and will often result in valuable suggestions being offered back and forth. The estimator should have a friend in every foreman in the plant, and he can best secure this friendship by letting them know that he is

not anxious to show up their faults or errors, but is only working for the good of the house. Lost time and costly leaks of various kinds can often be located and remedied by the co-operation of estimators and foremen, and the estimator can help the foreman by assisting him to keep the machinery running and in promises of delivery which he is obliged to make.

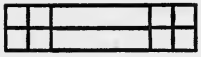
The theoretical cost can be made to approach most nearly to the actual cost of work by getting the largest possible product from the plant each day, by keeping the non-productive hours as low as possible and getting the highest speed from each machine. The real cost will be found to approach most nearly to the estimated cost if the shop is kept crowded with work that is produced in the most economical way by the foreman.

If a job is estimated to be run in a certain way and on a certain price, the foreman should be advised of this, so that he may run the work in the way estimated, if possible.

The study of the problem of estimating is based on the supposition that a cost-finding system is in use. The system must be accurately kept up, however, if results are to be satisfactory. For instance, I know of a plant which when a new machine is purchased adds the cost of this machine to the operating expense of the department for the month in which it is paid. I believe that this is a mistake, as new machinery or equipment of any kind properly belongs under the heading of investment. Small supplies purchased are properly put under the heading of operating expenses for the month in which

the money is expended, but any large purchase, if thrown into the operating expenses, will tend to affect the cost per hour of work in that department for the month and make it appear abnormally large.

In estimating the cost per hour of a certain machine, it should be remembered that this cost will vary from month to month, depending on the number of hours which the machine is operated each month. To offset this variation, it is well to find the average cost of a machine for six months or a year, and to use this cost as a basis of estimating until it is shown that there is a permanent change, either up or down, in the cost. For instance, if a certain machine shows a cost per hour of $1.25 one month, $1.50 the next month, $1.40 the third month and $1.35 the fourth month, it will be safe to estimate the cost per hour of that machine at $1.45 or $1.40, while if a machine should show a cost per hour of $1.50 for three or four months' running when the previous cost had been $1.25, it would be proper to raise the estimate to $1.50.



CHAPTER THREE

PROFITS FROM PRINTING

What Constitutes a Proper Profit on the Items of Cost which Enter into the Finished Product?

THE profit on a job of printing is obviously the most essential thing to the proprietor of a printing plant. It is the one part of the price received for the work which he can appropriate to himself for his own personal desires, and no matter how accurately the costs of a plant may be recorded or how accurately the estimates may be made, if the price received for the work does not include this elusive and attractive profit, the plant is not operated on business principles.

It is right and proper that a printing house should make a profit on the stock, the labor and all purchased items which may enter into the cost of production. What this profit should be is a matter upon which all printers do not agree, and the manner of arriving at this profit is quite different in various plants thruout the country. Some printers contend that they should have a uniform

profit of from fifteen to fifty per cent on the total cost of the complete job. Others maintain that they should receive a certain profit on the paper stock used on the job and a different percentage of profit on the cost of labor. It is not my intention to argue this question or to state which method I believe is most correct, but I agree with all printers that there should be a profit, and that that profit should be a liberal one whenever possible.

It is plainly to be seen that the profit on a small job, say one thousand letterheads, should be more in proportion to the amount received for the work than the percentage of profit received on a large job amounting to several thousand dollars. The estimator should be broad-minded enough to recognize this fact and to work in harmony with the owners of the plant he represents in securing a profit on the work that he handles which will show dividends at the end of the year. The matter of the proprietor's salary should not be overlooked in estimating the total cost of running the plant during the year. If a man cannot draw from the printing business, which he owns and manages, a salary commensurate with his ability in the business world and make a profit on the work which is handled above that salary, he had better sell his printing plant and either go to work for some other house or engage in some other line of business.

My plan of arriving at the proper price to be placed on a job of printing, whether in the form of a quotation or on the invoice when the work has been completed, is to find the total cost of the job, either by estimating or from the cost records, in case the work has already been com-

pleted, and then to consider the work from a liberal standpoint and make the price that seems correct, all things considered. Such conditions as competing prices, the customer's standing with the house and financial responsibility, prospects of future work, method of production, etc., should enter into the decision in fixing the price, and I believe that better results can be obtained by this method than by standing arbitrarily for a fixed percentage on all work. By my reference to prospects for future business, I do not mean to infer that a low price should generally be placed upon a piece of work in the hopes of influencing the buyer on another and perhaps larger job in the future. I believe that every job should stand on its own bottom, but a slight price concession can sometimes be made to benefit the house materially in securing other and more profitable work. The way in which a job is handled may make it possible to secure a profit of forty, fifty or even a greater percentage, without making the price appear unreasonably high, and all these things should be considered in making the price.

Many estimators make the fatal mistake of estimating the cost per hour of certain work at a certain price on one job and at a lower price on another on which they have keen competition. If the cost per hour as shown by the records of a plant is correct, it cannot be cut. This price is fixed, if originally correct. The profit on a job can easily be cut, and too often is, but the estimator should never attempt to lower his price by basing his estimated cost upon a lower cost per hour than that shown by the records of the plant.

It is often contended that a printer should make a larger profit when his plant is working to its capacity and business is good than he should when business generally is quiet and orders are hard to secure. This contention is probably correct to a certain extent. It is good policy to "keep the shop running," especially if you have employees whom you consider valuable enough to wish to retain, which you can only do by giving them continual employment, but a continued practice of doing work at cost or at a very small margin of profit is a bad habit which the master printer should avoid as far as possible. The filler job, as it is called, which is taken at a ridiculously low price for the sole purpose of keeping the plant in operation, is liable to prove a boomerang to the proprietor instead of a panacea for his business ills. On the other hand, all overtime, such as night and Sunday work, should be carefully recorded and charged to the jobs which occasion this additional expense. An estimator should always have this matter of overtime in mind, and should make his estimates cover all extra expense of this kind which can be foreseen. If there is any doubt as to the ability of the house to deliver a promised rush job at a certain time without working nights, this night work should certainly be added to the estimated cost and the price. Genuine rush work of any kind should be estimated at a higher price than the ordinary run of work, and by rush work in this instance I mean work which must receive special attention in order to be delivered as promised. Extra attention costs money and should be paid for by the customer. It is certainly a hard matter to esti-

mate the exact additional cost which a rush job may entail, but this can be well covered in the percentage of profit added in arriving at the price. For instance, if you are estimating a usual percentage of thirty-three and one-third per cent on a certain kind of work, this same class of printing should pay you forty to fifty per cent if it must be delivered within an unusually short time.

Improved methods and machinery have an important bearing upon this matter of profits. If you add a press to your equipment, by which you have a product of ten thousand sheets per hour from the machine, you should certainly share in the advantages secured by this speed and consequent lowered cost per thousand of presswork. I do not believe in giving the customer the benefit of new machinery which may be installed, but this statement is subject to exception, for if your competitior is operating the same speed press that you are, you must compete with his prices in the open market, and the chances are that he will be willing to at least divide the benefits of this press with his customer. A safe rule to follow, however, is this: Secure as accurate information as possible as to the cost per hour of operating the new machine and never take a job unless it shows a profit over this cost per hour.

The wily estimator will consider his competitor's cost and equipment as well as his own, and it is often of advantage after you have carefully estimated the cost of a certain job to make a new estimate of the cost of the job in your competitor's shop based on his plant and methods of estimating as nearly as possible. You will then have

two sets of estimates to compare; your own, which should be correct, and an approximate idea of the way your competitor will estimate the job; and this comparison may assist you in fixing a price which will secure the work you are bidding on.

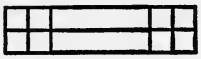
The capacity of the plant and its equipment should be considered in deciding what percentage of profit is a proper one in your own case. Generally speaking, the large plant can do work on a lower percentage of profit than the small plant because of the increased volume of the product, but the small shop has other advantages over the larger one, especially if operated in the smaller towns where wages are often materially less than in the large business centers.

A speaker at an organization meeting recently introduced the subject of profit by saying that in these times of cost systems, expense statements, expert advice and a thousand and one fancy terms, the average man is apt to become confused as to just what some of the terms mean. He then proceeds to define profit as the advantage or gain resulting to the owner of capital employed in an undertaking—the excess of the price over the cost. Profit in the printing business, he says, is represented by the actual net gain after all items of expenditure have been deducted, including the salary of the proprietor, which should be liberal, the salaries of bookkeepers, clerks, office help, etc. He quotes one of the leading printers of the West for the statement that if he were entering the printing business tomorrow, he would first secure the services of a competent bookkeeper and then a few print-

ers, but that the bookkeeper would make him the most money. Following this, he says that office stationery and every other item of expense that it is not possible to charge to some particular job should be covered in the general expenses. Before the profit is reached, advertising, cigars, treats to customers, telephone, etc., including donations and dues to business organizations should all be covered. Such items as rent, heat, power, light, water rent, gas, etc., should be distributed over the various departments in proportion to their use, and interest and discounts must be taken care of, together with the depreciation, interests on investments, bad debts and taxes. Referring to the subject of depreciation, he advances the view that the customer should pay for this item, because he is the one who is constantly wearing out the equipment. He offers the suggestion that a charge for depreciation should be made high enough so that when the time comes to replace old machinery, type, etc., you will have the wherewithal to do it. He offers the further suggestion that as money is worth six per cent, if you are not making a net six per cent in addition to your salary, you had better sell out the business, invest the money in a high-class first mortgage, get a job, and at the end of the year you will not only have more money, but better health and a smoother forehead. He believes that a certain amount should be charged up each month to indemnify the printer for interest on every dollar invested in the business and for the item of bad accounts which cannot be collected. The items enumerated constitute the expense account, and over against this item

of expense should be placed your total sales, and any other source of income and your cash discount (the money made by discounting your purchase bills). The difference between these two amounts constitutes your profit.

In conclusion, he urges printers to insist on making a profit on every job handled; first, because it is the only square way of doing business, being fair to all your customers, and secondly, because it is fair to yourself. His closing words were: "You are worthy of your hire and of the respect of the people who buy your wares, and to maintain both you must conduct a profitable business"



CHAPTER FOUR

ESTIMATING ON STOCK

Practical Advice on Estimating and the Economical Use of Paper Stock by the Printer

THE estimating of the paper stock is often considered as the easiest part of the estimate of a job of printing, but there is no item that enters into the cost of the product more important than the paper stock, and while the cost of the stock would seem to be a simple and easy matter to determine, it is, nevertheless, often extremely difficult to make the cost of the stock harmonize with the price which must be quoted in order to get the work, and in the selecting, buying and use of stock some printers are able to add materially to their year's profits, while others are frequently responsible for serious losses thru the careless consideration which they give to this very important item.

Paper stock is one item of an estimate the cost of which per pound or ream is fixed, and the paper dealer is not troubled with the same class of worries which harass the master printer. The dealer merely delivers the

stock that is ordered and finds no trouble in billing it at the highest price that he can secure. The proposition of making a profit on this stock is up to the salesman and the estimator, and it is my desire to show how stock can be utilized to the best advantage and how estimates upon this item should be made.

One of the first points that the estimator should always remember is the matter of waste in cutting, handling and printing. This waste always amounts to something and often runs as high as five, ten, or often a greater per cent of the actual number of sheets delivered on the job. The exact amount of this loss should be estimated as nearly as possible and added to the estimate. Waste is an important item in every shop, for many jobs are necessarily cut from sizes of paper which leave a considerable scrap when it is first cut. All of this scrap stock should be carefully placed upon shelves with a memorandum of the size, weight and number of sheets, and should be used on work whenever possible. The estimator should not make the common mistake, however, of figuring a lower cost on this waste than regular stock would amount to, as this waste should in every case be added profit for the house, and the advantage gained in this way is only a fair offset for the frequent losses thru spoiled work and from other causes which may properly be classed as the "hazards of the game." A good plan for the handling of scrap stock is to furnish stock cutters with rubber stamps, so that they may stamp upon job checks where the waste is used the word "scrap," to be followed by a statement like the following: "Equal to———sheets

———size." In this way it is easy to estimate the cost of the waste used and to charge for it accordingly.

Of course, where a quantity of scrap stock can be used on a job, which must be taken at a very low figure, it can some times be put into the estimate at a discount price from the regular cost of the stock in full sheets, but this practice should be the exception rather than the rule.

The cost of stock handling and stock cutting should be accurately determined from the records of the cost system in use in the plant, and this should be covered by an item in the estimate of every job requiring ten minutes or more for the handling and cutting.

In estimating the number of sheets of stock that will be required for a certain job, the estimator should consider the cutting of the stock from every angle, so as to cut as many pieces as possible from each sheet. Often by an odd manner of cutting from ten to twenty-five per cent of the stock can be saved, and no saving of this kind should be overlooked.

In buying stock from samples of dealers remote from the city where the printer is located, the cost of freight should, of course, be added to the cost of the stock in the dealer's warehouse, and this matter of freight can be easily figured by a few tables of information, which should be carried in the cost and price book of the estimator. I have found it very convenient to have made up a table showing the freight rate per thousand in car load lots and also the local freight rate on envelops of every grade, size and weight that are commonly used. By

having this freight in cents per thousand on envelops, the exact cost of a thousand envelops can easily be ascertained. I also use a table showing the cost laid down per thousand on the various sizes, grades and weights of envelops commonly carried in stock, and using this table as a basis, it is a simple matter to estimate the proper price per thousand on these various envelops in lots ranging from five hundred to ten thousand. This table is most convenient for reference when a price is requested on a quantity of envelops, which might require several minutes to estimate each time.

The estimator should be a good judge of stock. He should be familiar with the methods of manufacture of the different kinds of paper, the way in which envelops are made, and with the grades of paper handled by the different dealers in the market where he buys his supplies. He should be able to state the approximate value and weight of any sample of paper submitted to him without reference to catalogs or price lists. Knowledge of this kind comes only thru experience, however, and can hardly be acquired in any other way. The marks by which any paper is tested are its color, finish, strength, thickness and weight. A paper tester is a convenient device for testing the strength of papers and comparing one with another, but the ambitious estimate man will learn to judge the value of stock quite correctly without the use of any helps of this kind. The weight and quality of envelops can be correctly deduced by the appearance, tearing strength and general "feel" of the stock, a characteristic which is hard to describe, but which I

believe most good judges of paper rely upon very largely. Printers are frequently required to match samples furnished by the customer. These samples may come from any part of the world, as paper making is an occupation which is followed in almost all civilized countries, and imported papers are frequently seen and used in this country. My experience leads me to believe that it is far better in making an estimate to furnish samples of the stock you expect to use, and on which you are quoting a price, rather than to base your quotation on the samples furnished by the customer. I am fully aware that the statement "we will match your sample" made to a customer often affords the printer the tempting opportunity to substitute a cheaper stock than the sample, making a charge for the higher priced stock which he should have used, but I am convinced that a fair degree of business honesty is the best policy even in the printing business, and the submitting of your own samples with your price will obviate the possible and even probable misunderstandings and complaints from your customer.

The submitting of your own samples also gives you the advantage of being able to suggest that a different and lower priced stock than the one suggested by your customer may be used, and you may thus be able to quote a lower price than your competitors and still make a profit on the job. The matter of the substitution of a cheaper stock for the one called for is one which is always open, and perhaps will always remain open for discussion by members of the printing trade. It is often

claimed that, as the buying public is not familiar with the comparative values of different papers, it is proper to hoodwink customers to a certain extent in this matter of stock, but a printing house that has a reputation to sustain will preserve and strengthen a reputation for business integrity by following the straight and honest principle of never substituting a cheaper stock for the one called for without fully acquainting the buyer with the change.

The question of the advisability of carrying your own paper in stock or of buying your stock from the dealer as is required is one which may be argued from both sides. The conditions which govern each individual business would probably decide this question for the proprietor, and he should consider his own capital stock, his facilities for storage, the amount of his output and other considerations before deciding which policy is best for him to pursue. I do not think that it is good judgment for any except the largest houses to attempt to carry stocks of book or cover paper, but most printing houses can carry large or small stocks of such common items as envelops, flats, bonds, cards, etc., which are sold every day.

If a house has the output, it is advantageous to buy in carload lots direct from the mills, but this method of buying stock, with its accompanying saving in freight rates and on account of quantity, can only be taken advantage of by the larger houses.

The same condition applies to the matter of private water-marks. If you can use enough of one kind of stock

to have your own water-mark put upon it, it gives you a prestige with your customers that you can not secure in any other way, but individual circumstances must govern the question of the use of private marks.

The estimator must be familiar with the prices of making envelops and with the cost of manufacture of hand-made envelops of special sizes and stock. If this work is done in your own bindery, you can gain the information from your cost records, and if the work is sent out to an envelop maker, you can easily acquire a fairly accurate knowledge of the cost per thousand for the making of envelops of various sizes and kinds.

A directory of the paper trade of the country is of benefit to every estimator. Such information is frequently published in small pamphlet form, giving the names of all the brands, with water marks, prices, etc., handled by the various dealers in a certain territory, and these books are usually sold at a merely nominal price.

A knowledge of the trade customs that are in common use by the paper mills of this country is often beneficial to the estimator, and for the benefit of those who may not be familiar with these customs I am giving a summary of some of the common rules of the paper trade as recently published by one of the paper houses in connection with their price-list:

Broken Packages

The extra time required to count out and repack orders for less than original packages and the resulting waste, compels us to make a small additional charge above the prices quoted in the list on all orders for less than an original package of any paper

or cardboard, except when the broken package is ordered at the same time and in connection with a full package of the same goods. An original package usually contains a ream of paper or a hundred sheets of cardboard, but in some instances a less quantity is put up in a package, and in such cases we make the extra charge only on less quantities than the minimum contained in an original package. The quantity contained in a package and the amount of the additional charge for broken packages will be found mentioned in the price-list in connection with each class of goods.

Cutting

Our prices are all based on goods in stock sizes and in original packages, and as it is necessary in order to cut goods to maintain expensive machines and men to operate them and to unpack the goods and repack them, oftentimes requiring new wrapping paper and twine and in some instances special crates, we are obliged to make a nominal charge for each and every job of cutting. We shall, however, make a charge in all cases as low as the amount of work required and risk involved will permit.

The following list shows our rates for cutting regular stock:

1 to 5 reams cut ½ to ¼ sheets	10c. per ream
1 to 5 reams cut to smaller sizes than ¼ sheet	15c. per ream
Larger quantities and complicated cutting charged at time rate of	60c. per hour
Minimum charge for cut	10c.
Straw box or pulp board, one cut	15c. per bundle
Each additional cut	5c. per bundle

Trade Customs

The trade customs printed herein have been adopted by practically all paper mills making the grades referred to and are herewith put in compact form for the convenience of the trade.

Minimum basis of weight for standard papers to be as follows:

Machine finished	25x38, 40 lbs. to 500 sheets
Super calendered	25x38, 45 lbs. to 500 sheets
Enameled	25x38, 65 lbs. to 500 sheets

For lighter weight papers the extra cost of manufacture to be added according to weight. In all cases, on both sheet and roll orders, wrappers and twine to be charged at the price of the paper.

Writing Paper

1. On special sizes not less than ten per cent additional price for lots of less than one ton.

2. On special colors, or colors not regularly made in the grade ordered, ton lots or less, not less than ten per cent additional price. One to two tons not less than five per cent additional.

NOTE A. Applying to rules No. 1 and No. 2:

Under rules No. 1 and No. 2 the quantities mentioned are understood to be the quantities named in the original order or inquiry and not the quantities that may be arrived at by adding the ten or fifteen per cent overrun provided for under rule No. 3. For example, an order for say 1,900 pounds is an order for less than one ton and is to be accepted and billed at the ten per cent advance, altho when made, the allowed overrun may make the shipment aggregate more than 2,000 pounds.

NOTE B. Applying to rule No. 2.

Under this rule (Rule No. 2) mills may make in any established grade for a customer buying said grade regularly, without additional charge, such colors as may be decided upon as constituting the regular colors of such customer's line.

3. On special orders of one ton or less, over-runs not greater than fifteen per cent to be taken by customer. On orders for more than one ton over-runs not greater than ten per cent to be taken by customer.

4. Orders for less than a full package not less than ten per cent additional.

5. No paper made one weight and stenciled another.

6. The average actual weight including wrappers not to exceed two and one-half per cent above or below the nominal weight. Paper within this range to constitute a good delivery, and to be billed at the nominal weight. The above to be based on items of one size and weight on individual invoices.

7. No claims allowed after paper is cut, ruled or printed.

NOTE C. Applying to rule No. 7.

Experience has shown that exceptional cases occasionally arise where the fault is clearly with the mill and where an absolutely literal enforcement of

rule No. 7 would work injustice and hardship to the jobbers. It is therefore understood that mills will enforce the spirit of this rule, deciding exceptional cases upon their merits and according to the rules of equity.

8. All "make and hold" orders must specify an ultimate date for shipment, at which date goods are to be billed and invoices taken to account by customer whether ordered shipped or not.

9. Jobbers or manufacturers desiring special water-marks for their customers must pay the cost of dandy roll, and no credit will be given on account of the number of cases ordered.

Coated Papers

1. Minimum basis of weight for coated book (coated two sides) to be 25x38-65 to 500 sheets. For lighter weight extra cost of manufacture to be added estimated at not less than 5 cents per 100 pounds for every pound or fraction thereof below the minimum.

2. Minimum basis of weight for coated lithograph and label (coated one side) to be 25x38-55 to 500 sheets. For lighter weight extra cost of manufacture to be added estimated at not less than 5 cents per 100 pounds for every pound or fraction thereof below the minimum.

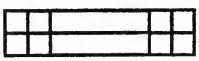
3. An additional price of not less than one-quarter cent per pound shall be charged for all making orders of less than 5,000 pounds one size and weight.

4. All papers shall be stenciled and billed at the ordered weight per ream where variation is not in excess of 5 per cent above or below. Paper within these limits to constitute a good delivery. All paper in excess of five per cent under the ordered weight shall be stenciled at its actual weight and be charged accordingly, if accepted.

5. Special making orders shall be accepted subject to overruns as follows:

Under 2½ tons	20 per cent
2½ to 5 tons	15 per cent
5 to 10 tons	10 per cent
Over 10 tons	5 per cent

6. No printed waste to be returned, and no paper taken back unless damaged before delivery. In case customer desires to make claim for damaged paper, report must be made immediately to the manufacturer, in order that the paper may be inspected before it is printed or cut.



CHAPTER FIVE

ESTIMATING COMPOSITION

Some Practical Suggestions on Estimating the Cost of Hand and Machine Composition, etc.

THE proper estimate of the cost of both machine and hand composition is a thing which most estimators find a difficult part of their work, as the actual cost of composition as shown by the cost records will often vary materially from the most careful estimates of the cost made before the work is done, and any information along this line which the estimate man can gain should be most cheerfully received. It is a difficult subject upon which to formulate any fixed set of rules, but the benefits of experience are most valuable in pointing the way towards some fixed principles which will be of value in practical work of this kind.

Hand composition, which is the original method of assembling type for printing, is still performed in the same way that it was two and three centuries ago, and the time required to produce a certain job of work still varies

with different compositors. The union scale of wages, however, which fixes a minimum hourly wage for each compositor in a shop, compels the estimator to find and use the average time of these employees and to make use of this average rate of speed in making his estimate. The fact that one man will compose a certain piece of copy in half the time that another will take to do the work need not interfere with the general results in a year if the proper average is used in making the estimates. Any good cost-finding system will show the average cost per hour for hand composition, and it remains for the estimator to decide the length of time which certain work will require to produce. Great caution should be exercised, particularly in close estimating, to place the time required for a job high enough so that the actual time will not exceed the estimate. A compositor will complete a certain piece of work in one hour on a bet, where he would frequently take from one and a half to two hours for the same work when working for his regular wage; and the estimator should bear this fact in mind and remember that the compositors in the shop which they represent are not working on a bet nor trying to win a prize for speed composition.

In estimating composition, it is important to know definitely just what kind of a job the customer expects, and a sample of the catalog, booklet or other piece of printing on which you are estimating, furnished by the customer, will be valuable in estimating the cost of the composition. It is frequently valuable to confer with the foreman of the composing department regarding the

length of time required for a certain job, but you should bear in mind that the foreman's estimate of the time is more apt to be too low than too high. The new method of estimating the cost of composition by the square inch may often be used as a check upon your estimate made in the usual way by computing the number of hours which you believe will be required for the work.

In dealing with machine composition it is well to remember that no matter how small this work may be there is always a certain amount of handling and hand work connected with it, and this work must have a place in the estimate of the composition.

Proofreading is an item which is often lost sight of, but this work is a part of the pay-roll of the composing-room, and the cost of proofreading should be placed in the estimate of any work larger than a small envelop or letterhead. Remember also that the proofreader requires a copy-holder who must be paid, and that the rate per hour for proofreading must necessarily be higher than the rate per hour for composition, even tho the proofreaders are paid the same wages as compositors. A simple way to estimate this cost per hour of proofreading is to divide the wages of the copyholder per week into those of the proofreader and add this percentage to the amount per hour. For instance, if proofreaders are paid twenty-five dollars per week and your cost per hour for composition is one dollar, the cost of proofreading would be one dollar and twenty cents if the copyholders are paid five dollars a week, which is twenty per cent of the wages of the proofreader.

The matter of corrections and alterations from copy is one which must be watched very carefully in making an estimate, because the cost of these corrections and all revised proofs will often use up the profit which has been figured on the composition. Changes from copy and alterations of any kind should always be charged to the customer at a profit, and in making an estimate it often saves future argument if you have a distinct understanding with the customer that any changes from copy will be charged for accordingly.

Machine composition should be handled in an entirely different way from hand work, and in the case of machines which have a distinct keyboard and caster, the cost of both these parts of the work should usually be estimated separately, as the time required to cast the type for the job will not necessarily equal the time required on the keyboard.

The machine composition clubs of several cities have formulated a set of rules governing the price of machine composition, and these requirements form a valuable basis of information in estimating work of this kind. Among the rules set forth which the estimator should bear in mind and adapt to his own use as far as practical is the one which makes the minimum line measure twenty ems of the type in which it is set, whether on a slug casting machine or one casting individual type. Copy intended for machine composition should be legible and an extra charge should be made for poorly prepared copy, such as that written on both sides of the paper or any form which prevents its being easily handled. Type

larger than eleven-point can safely be measured as ten-point and charged at this price. Counted lines to run around cuts, initial letters, etc., should be charged at double price and measured the full width of the page. This is an important matter in estimating composition, as many estimators are apt to deduct the space occupied by cuts and estimate the balance of the space as straight matter. Matter set over thirty ems on slug-casting machines should be charged at price and a half, and if the lines contain small caps, italics or black face, an extra price should be charged. On machines casting single type, matter over forty-two ems wide should be charged for extra. A charge should be made for alterations, even where no change of the machine is necessary, and where the machine or type must be changed the charge for this should be made on a time basis. A valuable suggestion that applies to all machine composition is that on jobs of less than five thousand ems the charge should be based on the time required for the work, instead of by the thousand ems. Any intricate matter containing a large proportion of figures or technical matter can also be charged on a time basis much more satisfactorily to the shop than on a basis of the number of ems. Matter which requires lines to be centered should be charged on a time basis or in some way to cover the additional time required. Matter running line for line may properly be considered as objectionable and worth a better price than strictly straight matter. Leader work or any other class of composition requiring two or more justifications should be charged for at an extra price, the Chicago club suggesting

price and a half for the leader work and double price for more than one justification. All rush jobs of machine composition are expensive to produce, and should be charged for accordingly. Cheltenham and other "skinny" type used in machine composition should be charged for extra, because of the fact that there are more words and consequently more keyboard work to the line than for an ordinary roman face type. Typewriter type used on the machine should pay an extra price as well as five-point over twenty pica ems wide. All of the above suggestions referring to the proper charges to be made apply equally as well to estimating the proper cost of the work, as an extra price is necessarily only required when there is extra cost.

In plants where both slug-casting machines and single-type casters are in use the estimator should be able to decide correctly which machine the job in hand is best suited for and should base his estimate on one method of composition or the other accordingly.

Pick-ups and forms kept standing should be a profit to the shop rather than a convenience to the customer. It is usually more satisfactory merely to tell the customer that the work can be produced on short notice than to explain to him that you are keeping the form standing on account of the saving of cost that can be accomplished. It costs more money than most printers realize to keep matter standing in forms, because such a practice is apt to make the cases low and seriously hinder the production of new work. Whenever possible a re-order on a job should be charged for at the original price, and if for

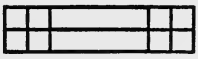
any reason this can not be done, an amount should be figured in the estimate for keeping the matter standing.

The matter of make-up is one which is often extremely difficult to approximate, but a set of rules to govern the estimator on this point would be almost impossible to formulate. Experience is the best teacher.

The item of lock-up is almost equally difficult to estimate. The cost of this item necessarily depends upon the size of the form and number of pages to be handled, and careful reference to the cost records of the work of the shop will put the estimator in the way of correctly estimating the cost of this kind of work.

The equipment of a plant necessarily affects the cost of composition. If a shop is well equipped with type-faces in good quantity, rules, slugs, leads, etc., the compositors will make better time than they can possibly do in a shop where there is always a shortage of material.

The individuality of the purchaser also affects the cost of composition very materially. It is sometimes difficult to predict the peculiarities of a buyer and to judge how far his personal characteristics will affect the job, but after one or two experiences with a hard-to-please customer, the wise estimate man will be ready to meet his unreasonable demands, and will make an estimate for him high enough to cover the changes and alterations which he knows will be required before the work is completed.



CHAPTER SIX

COSTS IN THE PRESS-ROOM

Suggestions on the Profitable Method of Estimating Press-Room Costs

IT HAS often been said by men in the printing trade that the money that is made or lost in the printing business rests with the press-room, and that if the press-room can be made to show a profit, the plant will be able to pay dividends to its stockholders. While this may or may not be true, the press-room is, nevertheless, an important wheel in the machinery of the plant. Almost every job taken must pass through the press-room before it is completed, and cannot reach the bindery or delivery department until it has passed thru the presses in some form. While the recent agitation for new and better cost-finding methods would tend to indicate that no department of a printing plant is more important than another, by reason of the large investment required in the press-room the estimating of costs on this kind of work should receive the most careful attention at the hands of those

who would succeed in making money for themselves or for their employers in the business.

Presswork in a modern plant now includes various classes of machines, such as the platen press, the cylinder press, the automatically fed platen, the automatically fed rotary press for small work, such as envelops, etc., and web presses printing from a roll.

The cost system in use in a shop should show the cost per hour of operating each of these classes of presses, which should be kept distinct from one another.

The estimator finds a serious problem before him when he comes to estimate the cost of the presswork on a job which might possibly be run on one of two or three classes of presses, and he must decide which press can best handle the job and at the lowest cost. If a pressroom is equipped with a rotary envelop press, all envelop jobs of ten thousand or more which can be run satisfactorily on this machine should be estimated at the low cost which this sort of a press makes possible. If your plant is the only one in your vicinity, however, which operates a press of this kind and you have no competition, there is no reason why you should not get a price proportionate with the cost of running this kind of a job on a platen press. Circumstances should govern the conditions, however, and the estimator should be thoroly familiar with the work and capabilities of the presses on which he estimates. It is not usually profitable to run a lot of less than five or ten thousand envelops on a press of this kind, which requires a curved electrotype plate, on account of the cost of the plate and time required for

make-ready, and the fact that often two or three plates will be required to complete the work. These suggestions apply to other rotary automatically fed presses. Platen presswork is perhaps the commonest and most simple form of presswork to estimate. You have the cost per hour of the press, and the matter of the time required for the make-ready is the most important consideration. It is well to remember, however, that large halftones can not be satisfactorily run on a platen press, except on the heavy presses made especially for this sort of work and for embossing, dieing, etc.

In estimating work for the cylinder presses, it may be necessary to figure the cost of running a job on a pony press, if such a press will accommodate it, but if you know that your small cylinders are tied up with work, so that the job in hand will have to be run on a larger press, you should estimate the cost on the large press if possible. This is a matter where the estimated cost and the actual cost of production frequently conflict, and the estimator should, as far as possible, obviate any discrepancy of this kind.

Some of the new automatically fed presses which are being placed upon the market successfully handle a certain class of work which would otherwise be run on some of the other styles of presses. Several of these types print from the form direct with automatic feeding devices and permit of a speed of from four to six thousand per hour. Web presses are not so common as other styles of machines, except in newspaper work, and for that reason will not be considered in detail in this article.

Knowing the cost per hour of operating a certain press, it remains for the estimator to know the running speed of these presses. For practical purposes of estimating, it is much better to keep a careful record of every run made on the presses for a certain period of time, say one month, and from the figures thus obtained of the total production of printed sheets the average running time of each press can easily be found. These records of production should be used rather than others not actually obtained in the shop.

The item of ink is an important one and should find a place in the estimate of every job, except the smallest orders of envelops and commercial stationery using a minute quantity. The estimator can often obtain valuable information as to the amount of ink required for a certain job from the foreman of the press-room, and the number of pounds and cost per pound of the ink should be taken into consideration in estimating the cost.

Slipsheeting is an item which should never be forgotten. If you decide that it is necessary to slipsheet a job, place this extra cost in your estimate, and see that you get a profit on this part of the work as well as any other. While slipsheeting can be done by comparatively cheap help, it should be borne in mind that it usually reduces the speed of the press and that slipsheets must be removed after the job is printed.

Many estimators find it difficult to determine just when it is economical to make electros so as to run a job double or with several forms on the sheet. This can only be determined by experience and by figuring the cost of the

job in several ways. First, if run single, then if run double with one electro, and possibly on the cost if the job is run with three or more forms on the sheet. The cost of presswork can often be materially reduced by doubling up in this way, and occasionally a saving can be effected by running two or more jobs from different customers on the same sheet at the same time. The estimator should be alert for such opportunities to make a profit for his house, and in running a small job on the end of a sheet with a larger one, the cost of presswork on the small form should be estimated as tho it were run alone on the press which would be required to print it.

The matter of spoilage, over sheets and waste of stock in the press-room should receive careful consideration at the hands of the estimator. Some jobs require more extra stock than others, and this stock will some times amount to as high as five, ten or often a greater per cent of the number of perfect sheets. Generally speaking, fine halftone work and color work should be allowed more stock for spoiled sheets than ordinary commercial work or work run in one color without cuts.

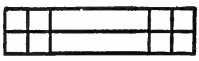
The matter of make-ready is an important one, particularly on cylinder presses, where the time occupied on the make-ready will often exceed the running time of the job. Halftone cuts particularly require considerable time for their make-ready, and the estimator can not be too careful in determining the time for this part of the work. Any changes to be made on presses during the running of the job should be accounted for in the estimate, and it should be remembered that the time required for making

these changes takes not only the time of the press, but the time of the printer and lock-up men who make these changes. If a press is kept waiting thirty minutes for a change of form, there is a half hour's time of the compositor in making these changes as well as the half hour lost by the press. All of this time should be properly paid for by the customer, altho the waiting time on the press may be considered as non-productive.

Embossing, scoring, dieing, perforating, numbering, etc., done on a press may properly be considered together, and in estimating work of this kind great care is necessary to have your estimate cover all of the actual time required. For embossing, the cost of the plate must be covered, and also the time required in placing the composition die on the platen of the press and allowing for it to dry after it is set. All this is in addition to the running time required for doing the actual embossing. Scoring is a smaller matter and can usually be estimated on about the same basis as ordinary presswork. The dieing out of paper in various fancy shapes or the cutting of stock on the press must usually be run at a slow rate of speed, and the estimate for this kind of work should cover the time required in making the die, either by hand with often unhandy tools, or with some of the new rule cutting and bending machines, which have been recently placed upon the market. Perforating on a press is usually done at the same time that the job is printed, and in such case its cost may be considered as practically nothing. Numbering on a press may be done either at the time the form is printed or in a separate operation.

In any event, the estimator should remember that there are certain combinations of numbering that can not be done with a press numbering machine, which changes the figure automatically at each impression. Serious losses have some times been occasioned by an estimator overlooking the fact that the kind of numbering and changes required on a job could not possibly be done on a press at the time the job was printed.

If your press equipment is such that you are able to perform several operations at one impression, such as numbering, perforating or scoring at the time the form is printed, it does not necessarily follow that you should not make a charge for this work. Take advantage of your superior equipment whenever possible, and you will then be better able to make a close price on a job when you are actually required to do so, in order to secure the order from some competitor as well equipped as your own plant. Estimators should take a broad view of costs and prices of presswork and make their figures accordingly. Don't give away the benefits which improved machines may be to you by giving the customer the profit. When necessary, divide the profit with him, but never give him all of it.



CHAPTER SEVEN

COSTS IN THE BINDERY

How to Estimate Costs in the Bindery Correctly and How to Make Money in this Department

IT HAS frequently been stated that most of the money that is lost in the printing business gets away from the proprietor when the job passes thru the bindery. While this may be true in many individual instances, I believe that such a condition of affairs is not only unnecessary, but can be as easily corrected as any other errors of management or estimating in other departments of the printing business.

The new cost-finding systems, which are fast being adopted in the printing plants of this country, divide the work of the bindery into two or more departments. Girl's hand work, girl's machine work, finishing, forwarding, cutting, ruling, etc., are all treated separately, and this division of labor is of material benefit to the estimator in giving him the cost per hour of the various kinds of work handled in an ordinary bindery.

Taking up the various kinds of work which are com-

monly produced in a bindery, I wish to offer a few suggestions drawn from my own experience and observation, which may be of benefit to the estimators thruout the country in correctly appraising the cost of these various operations.

Taking up first the subject of folding, the estimator should first decide correctly whether a book is to be folded by machine or by hand. In arriving at the proper conclusion, he should be fully conversant with the size and possibilities of the machines in use. If a job has several thousand sheets that can be folded on the machine, the work should be done in this way. If they cannot be machine folded, they must be folded by hand, and the time required for this work must be as carefully gaged as possible. The assistance of the forelady of the bindery will often be a valuable help in correctly estimating this and other kinds of hand work, as she is in close touch with work of this kind and has a fairly accurate idea of the time required for almost all kinds of hand operations. It should be remembered in estimating on hand folding that while a single fold of thin paper can be done very rapidly, because several sheets are folded together to be afterwards run out, the time required on two or three folds of hand work will be more than double or treble, because each sheet must be folded singly.

The estimator should familiarize himself with the sewing of books, and if a sewing machine is used for edition work, he should understand thoroly the capabilities of the machine and the speed which is possible on various kinds of work.

Such work as padding should be estimated as carefully as other operations, altho this is a part of the work which is often entirely ignored in making a price. The cost records should show the time required for padding all work of this kind, and the estimator should not forget the boards used for the backs of the pads.

In considering the cost of machine bindery work, such as sewing, folding, wiring, stitching, perforating, punching, etc., the cost per hour of the machine should be the unit, and on small runs it should be remembered that the time required for setting and adjusting a machine will sometimes equal or exceed the actual running time on the job. For ready reference in making quick estimates it is possible to prepare a table showing the cost per thousand of such work as perforating, punching, numbering, round-cornering, etc., in various quantities, but in actual use it should be remembered that any such table of figures is subject to variance one way or the other, depending upon the weight, thickness and quality of the stock used.

Regarding paper ruling, the equipment of the plant has much to do with the cost of this kind of work. The cost per hour of the machine should be taken as a unit in estimating, and the fact that a ruling machine is machine or hand fed may perhaps be disregarded in an estimate, altho it must be remembered that the smaller jobs are always hand fed, as it does not pay to take the time required for setting an automatic feeder on small jobs. A good basis of estimating ruling is to divide the stock to be ruled into reams and estimate the cost of setting up the pens and

ruling the first ream at the amount of time that will be required, and then add the balance of the reams at the cost which the speed of the machine on the job in hand would seem to indicate. On all small or complicated work, however, this ream basis of estimating should be disregarded, and the cost should be estimated solely on the basis of the time required for the work. If your machine will permit both sides of the paper to be ruled at one time, this should be taken into consideration, but the public need not necessarily be given the benefit of such a saving of time.

Rebinding and repair work is often an important part of the bindery, and the cost of this class of work will be found to vary materially in different shops, depending upon the amount of work which is done. Repair binderies, which make a speciality of this sort of work, will repair or rebind a book for seventy-five cents and make a profit on the work, when another shop will show a cost of one dollar or more for the same amount of work. This can be explained perhaps by the fact that employees who become familiar with this repair work learn to do it more speedily than those who only occasionally handle a job of this kind, and the cost of work in any shop may be reduced by bunching orders and refusing to promise quick delivery on any repair work. By doing this, a number of magazines or other volumes can be taken on together and much better time made than if they were handled individually as they came in.

The same statement regarding the varying time shown in different binderies applies equally as well to edition

work, case making, or other branches of the trade, which some shops make a specialty of doing and others handle only occasionally. If you are estimating on a job of a class of work which is not frequently handled in the shop which you represent, you should be very careful to make a price that will show a profit when the work is completed. Much pamphlet and other binding of this kind is produced at a loss, because the estimator is not familiar enough with the kind of work to be able to make an accurate estimate of its cost. When a job is secured it should be taken up with the foreman of the bindery and plans made to handle it as economically as possible in connection with the other regular work.

Blank books, which almost every bindery is asked to produce, can usually be estimated by considering the individual time required for the items of folding, sewing, stock cutting, forwarding, finishing and the cost of the stock required. The estimator should be familiar with the bindery stock carried on hand and with the current prices on leather, cloth, boards, thread, glue, gold leaf and other materials used in finishing, and should be able to estimate correctly the amount and cost of stock required for any job.

The making of loose-leaf binders and sheets is similar to the manufacture of blankbooks, and the cost of this work should be estimated in much the same way. Many binderies produce large quantities of loose-leaf binders of both the sectional post and the enclosed back styles by purchasing the metal parts necessary and making up the binders in their own shops. The cost records in binderies

where this work is commonly done show that binders can be produced about as cheaply, if not more cheaply, than those bought by the large manufacturers. The cost of crimping and punching sheets, which two operations form an important part of loose-leaf sheets, should be thoroly understood and estimated either by the thousand sheets, or on a time basis, depending upon whether the job is a large one of several thousand sheets, or a small one of five hundred or less.

The cost of forwarding may be based upon a careful study of the cost records on various classes of work, and in shops handling a considerable quantity of blankbooks, it is sometimes found practical to estimate the cost of binding a certain sized book in a specified style at a certain number of hours, and if there is sufficient work to keep one or more forwarders busy on one kind of work, it can easily be ascertained how many books of a certain size and style can be forwarded in a working day, and this information is valuable to the estimator.

Finishing and lettering come under the same head and should always be estimated upon a time basis. The cost per hour of this work should include the gold leaf or other materials used, altho on certain classes of work using an extra amount of gold the cost of this material should be figured as a separate item.

Apprentice time should be considered on work which can be done by those who are learning the trade, and the cost per hour of their work should be used, taking particular care that you do not figure this reduced cost on classes of work which cannot be done by apprentices.

The cutting of stock in the bindery should be estimated upon the proper cost per hour of the machine and workman operating it, and the estimator should be thoroly familiar with the time required for cutting a thousand pamphlets, for instance, and other work of this kind, as this is an item which is often overlooked or incorrectly estimated.

There is always more or less wrapping and handling of work done in the bindery by the girls to assist the delivery department in making deliveries, and this time, particularly on a large job, should enter into the estimate as a part of the accurate cost of producing the work. Such items as wrapping paper, twine, etc., should also be accounted for, if the job is such that there is an appreciable cost attached to those items.

With a proper system of recording and estimating the various departments of bindery work, there would seem to be no reason why the bindery should not pay as large a profit as any other department of a printing plant. It is a custom among certain master printers to estimate one percentage of profit on paper stock, say ten per cent, with perhaps twenty-five per cent or thirty-three and one-third per cent on composition and presswork, and from fifty to one hundred per cent of the cost for profit on bindery work. In view of the observations above, it would appear that these gentlemen have arrived at this basis of making prices from the belief that the bindery was a losing proposition, unless an extra large profit was figured on the work in this department, but I believe that such a system is a mistaken idea of the true condition of affairs. With an

absolute cost-finding system in operation thruout the plant, I do not see why a larger percentage of profit should be estimated upon bindery work than upon the work of other departments of the business, and I believe that if the suggestions outlined above are followed out in conjunction with the careful use of a proper cost-finding system, the best results can be obtained by estimating a uniform profit on the work of the bindery with that produced by other departments.

CHAPTER EIGHT

MISCELLANEOUS ITEMS OF COST

Estimating the Cost of Purchased Items and Work Sent Out of the Printing Plant

EVERY printer is frequently asked to quote prices upon work which he does not actually do in his own plant, and he is expected by the public to be familiar with the various trades and crafts which are allied with the printing business. It is not good policy to inform a prospective buyer that you don't do certain kinds of work in your own plant, if he assumes that you do this work, and it is often poor judgment to admit ignorance upon subjects with which you are reasonably supposed to be familiar.

For this reason, the master printer and the estimator should have a good working knowledge of the various trades which are allied with the printing business, or which the public have come to consider as within the province of the printer.

Photo-engraving, electrotyping, steel and copper plate engraving, embossing, advertising novelties, art work and

many other subjects come within the class of work which many printers do not handle themselves.

Any orders which you accept for work which must necessarily be done outside of your own plant should properly pay you a profit above the price which you must pay for the work. The estimating of the cost is naturally much simpler than for work of your own production. You can secure from the trade houses with whom you place your orders prices and estimates upon the cost, but you must, nevertheless, have a fairly thoro knowledge of the work referred to and unusual business acumen, if you expect to realize a profit upon work which you do not handle yourself, and upon which you may be asked to compete in price with other houses making a specialty of this same work. It is therefore somewhat of a problem to handle trade work of this kind upon a profitable basis without revealing your true position to your customer, and thus possibly putting yourself in a bad light to him.

The subject of this chapter may also properly include various items which enter into the expense of operating a printing plant which may not be treated in any other way, such as odd jobs of cutting, embossing, etc., the handling of sketches, drawing, and other art work for lithographing and steel die embossing.

Taking up some of these items, one at a time, we may first consider the matter of electrotypes and stereotypes, which are not usually produced in the small printing plant, but are ordered from houses making a specialty of this kind of work. Stereotypes are but little used in this day, except for the curved plates used on web presses.

Electrotypes, which are copper faced, and wear longer, are much preferred, altho their cost is somewhat higher than for stereotypes. Electros are sold by the makers on a scale basis, and every estimator should provide himself with an electrotype scale, which will enable him to see at a glance the cost of an electro of any size and shape. Electrotypers usually allow printers a certain per cent discount from the scale price, but in any event the cost of these plates is very easily found from the printed scale, with which every electrotyper is supplied. In estimating any printing of ten thousand or more copies, electrotypes may usually be used to advantage by making plates of the original type form, so that two or more copies may be printed at the same time. The number of plates to be made so as to reduce the cost to the lowest possible point can only be ascertained by estimating the presswork in various ways; that is, the cost of the presswork if the job is run single from the original type form, the cost if run double by making one electrotype, and the combined cost of presswork and plates if more than one electrotype is made. This reminds me of a talk I once had with a young fellow who had just finished an experience of about one year in the office of a large printing house. He said to me: "I would like to estimate printing, and I know how much it costs per hour for the various kinds of work, but what I want to know is how many hours does it take to do a job?" He wanted me to give him a safe and sound rule to follow so that he would know the number of hours that would be required to produce any job that might be offered to him for an estimate, and he could not

understand how the result was arrived at. Of course, I could not give him the information he required. Experience is the great teacher on that subject, but after years of practical experience myself in this particular line of work, I know of no way for finding the most economical way of doing the presswork other than by estimating the cost if done by each of several methods of handling by electros in doubling up the form. It is the only sure way of reaching the lowest cost.

Halftones and zinc etchings are sold by the engravers on the square inch basis with a minimum price for ten square inches or less. The estimator should be familiar with the prices charged to the trade by the engravers and with the prices which the engravers are in the habit of making to the public. Best results can usually be obtained by a printing house placing all its engraving orders with one firm, and keeping in as close touch as possible with this house. It is folly for a printing house to attempt to compete in prices on engraving with the engravers themselves, and when asked to meet hard competition of this kind, it is usually better to frankly inform the customer that you do not do this class of work yourself, and if it is to be let on a competitive price basis, that he can do better by dealing with the engraver direct.

The estimator should also be familiar with the charges for the various kinds of plates that are produced and with the charges that are made for outlining, vignetting, cutting ovals and other fancy shapes, etc., for which the engraver always makes an extra charge. This information can be secured from the engraving house, and these

extras should always be explained to a customer in quoting a price.

Many printers take orders for steel and copper plate engraving and embossing, turning the work over to some trade house that makes a specialty of work of this kind, and a good profit can often be secured on orders for calling cards, wedding invitations, and announcements and business and society stationery. The plates and dies used for producing the work are usually retained by the engraver, and as the engraving of the die or plate is always an important part of the cost, the estimator should ascertain whether a new plate will have to be engraved or not on each job that he handles. The matter of quoting prices on this class of work is not difficult, as the proper prices can easily be secured from the house to whom you send the orders.

Sketches, drawings and other art work are often required of the printer, and he is frequently asked to estimate and quote prices upon work of this kind without consulting with the artist who does the work. An estimator can secure, however, from the artist, a more or less comprehensive schedule of cost for various kinds of work, and he should be careful not to quote prices on anything on which he is not positive that his information is complete and accurate.

Presswork, machine composition and bindery work are often farmed out to shops making a specialty of trade work. Where this is the custom, the estimator should always secure prices from the trade shop on the job which he is estimating before quoting a price on the work. He

has an opportunity here to secure exact costs, as the house doing the actual work must make the original estimate and take all the chances. It is essential, however, that correct and comprehensive specifications be furnished to the trade shop so that there may be no misunderstanding as to the price to be charged. Particularly on machine composition there should be a mutual understanding as to the method in vogue in measuring the matter set, charges for solid and leaded composition, and for other details of the work, such as proofreading, corrections, alterations, etc. In bindery work particularly is it necessary that the specifications be complete and exact.

In estimating upon a job of tabular or ruled work, it is sometimes advantageous and economical to make zinc etchings from the original copy, as it will sometimes be found cheaper to have these photo-engravings made than to set the type and rules for the job. The estimator should always be on the alert for an opportunity of this kind. A case like this recently came to my observation. When bids were asked on printing an insurance rate book, which was almost an exact reproduction of a previous book of tables of insurance rates, it was found that zinc etchings of the pages of the original copy could be made much cheaper than the composition could be produced, and the total saving in cost on the job was considerably more than one hundred dollars. Always remember that any black copy on white paper can be reproduced by the photo-engraving process; also that certain colors, such as red and orange, reproduce the same as black. It is a good plan to learn from the photo-engraver who handles your

orders what his facilities are for reproducing copy in colors, and just the effect of the various colors upon a plate.

Lithographing is a complete trade by itself, but many people do not discriminate between printing and lithographing, and are unable to detect the difference in the appearance of the product of one process and the other. For this reason the printer is often called upon to give an opinion regarding work which has been lithographed, and to quote prices upon lithograph work, which makes it necessary for him to be more or less familiar with this process of producing beautiful soft effects upon paper. If a printer intends to handle orders of this kind, he should devote considerable time to learning the methods in use by modern lithographers, so that he may be competent to talk intelligently upon the subject with his customers. I do not believe, however, that it is good policy for the ordinary printer or estimator to attempt to quote prices upon lithographing without first securing a price from the trade shop that does his work, as the subject is an intricate one and not easily understood in all its details.

The making of the sketch and the engraving for new work is usually the principal item of cost on a lithograph job, and it is hard for a man who does not handle this class of work every day to estimate correctly the cost of engraving of various kinds. Lithographers make a practice of keeping the engravings used on every job which is at all likely to be ordered the second time, and for this reason a seemingly low price can often be made on a second order, altho the sacrificing of a large profit in this way is not to be recommended.

Some lithographed or engraved jobs can be fairly well reproduced by the photo-engraving process and printed from the zinc etchings produced in this way, and the printer can often secure work which formerly went to the engraver or lithographer by suggesting that it be produced by photo-engraving a copy of the original job.

Good prices can usually be secured for any fancy job of die cutting which may come to the printer, and simple machines are now on the market for bending and cutting steel rule used in cutting out paper in various fancy shapes on a platen press. The public is not yet familiar with this process, and for this reason is usually willing to pay a fair and even an extravagant price for the work. The cost of making these dies from steel cutting rule should be estimated in the same way as the cost of work on any other machine, altho the same cost per hour as is used for hand composition may safely be used, as the investment in the devices for bending and cutting rule is not large and would not greatly exceed the value of a type frame and cases at which the compositor would ordinarily be working.

Advertising novelties will usually bring a good price, and their cost should be estimated on a liberal basis by a house not making a specialty of this kind of work. The man who wants to buy an advertising novelty of any kind is usually willing to pay a good price to the printer who will follow out his ideas in the matter, and the patron is at a loss to know what constitutes a fair price, because he usually doesn't have any standards by which to judge of the value of the work. I do not mean to infer

that the printer should take advantage of the occasion to overcharge his customer, but that he should secure a rather larger margin of profit than on ordinary commercial work.

The same principle of pricing applies to any job that may be considered as out of the ordinary, because work of this kind usually costs more than the estimator will allow for it, and in such cases he must guard against his own possible poor judgment caused by unfamiliarity.

It is a hard matter to state just what percentage of profit is reasonable and fair to charge for work that is sent out of the shop to be done. In the matter of electrotypes, engraving, lithographing, and steel and copper plate engraving, it would seem that the proper price would be the same that the producer of these kinds of work would charge to the public, especially where a trade discount is given by the manufacturer to the printer. On other kinds of work, twenty-five per cent profit above the cost would seem to be a fair margin for handling the work. In some instances this should be larger, and in others conditions would indicate a smaller margin of profit, especially if the work is handled in connection with straight printing done in the printer's own plant. At any rate, it is a mistake to handle any job which must be sent outside unless it pays to the printer a fair and reasonable margin of profit for his work in handling the order, probably making the delivery and carrying the account on his books until paid for.

CHAPTER NINE

ADVICE FOR YOUNG ESTIMATORS

Some Hints on the Possibilities and Proper Methods to be Followed in Estimating the Cost of Printing

PERHAPS the best advice that can be given to a young or an inexperienced estimator of printing is to go slow, be careful and make no mistakes thru the common error of careless or inaccurate attention to the work.

With this advice to start on, the estimator will save himself from falling into many of the errors which are so easy to make and so difficult, if not impossible, to remedy.

It has been said that a doctor buries his mistakes. In the same sense the mistakes of the estimator are often hoisted into view to become a sad remembrance for years to come.

One of the most important things that an estimator can do to further his progress along the line of the evidently arduous occupation in which he is engaged is to learn early in his career to profit by his own and others'

experiences. He should not only profit by his mistakes, but he can profit equally as well from his successes. If you make an estimate on a job which the subsequent cost records of the work when it is produced show to be correct, let the facts of this accurate estimate stick in your mind for future reference to assist you in preparing other estimates of work which may be similar in character. The value of detailed knowledge and careful observation in estimating printing can not be overestimated. Even the older and more experienced men in the game come in contact almost daily with situations which are new, even to their large experience, and if this be true, how much more necessary is it for you to gather and classify in your own mind as much information as possible of the thousands of detailed bits of information regarding the costs of the various operations entering into the complicated trade of printing and the allied crafts, with which you daily come in contact.

There are certain things connected with the estimating of printing which may properly be called the "hazard of the game." Under this head may be noted unavoidable accidents, breakage, errors which escape the most careful proofreading, and many other things which it is almost impossible to guard against. The losses occasioned in this way may appear upon the cost records of a plant under the heading of spoiled work; possibly some of them never appear at all, but in any event, it is the part of the estimator to guard against the possibility of such losses as far as is in his power by learning quickly to gain an accurate and comprehensive view of every job which may

be submitted to him for an estimate. Overtime and delays can not always be foreseen, but if there is a possibility that overtime will be required upon a job, the estimator should be the first one to see and appreciate the fact that the cost of this job will be materially advanced by this fact, and to guard against possible loss on the job by making a price that will cover the additional cost or expense.

The young estimator should make it a point always to understand the job upon which he is estimating thoroly before starting to do his work. He should insist upon having accurate and complete specifications from the customer before he makes a price upon the work. Particularly does this apply to the matter of seeing the copy before estimating the composition, and the estimator should be most careful, especially in handling advertising matter, such as posters, etc., that the copy shall be submitted to him before he makes an estimate on the cost of composition.

The margin of delay is a matter with which the estimator frequently has to deal. Most jobs are required to be delivered upon a certain date, at least the printer is asked to make a promise of delivery upon a certain time, and modern business is making a more truthful man out of the printer as regards these promises than was formerly the case. It used to be told of a printer in St. Louis that he would meet a customer upon the street who would ask him if he was going to deliver a certain promised job that afternoon. The printer would reply, "We certainly will," and would then hurry back to his shop and have work started on the job, altho he knew that it would be

absolutely impossible for the largest shop to deliver the job on the date promised. Such methods are not in line with the improvements and reformations which have taken place in the printing trade within the last few years. With better methods of ascertaining costs and of estimating work, it is but natural that the printer should be more careful in promising the delivery of work and more truthful in keeping his promises in this regard. It rests very largely with the estimator as to whether a job is delivered on time or not, and he should be familiar with the capacity of the plant which he represents, and with the conditions of work in the plant at all times, so that he may make intelligent promises of delivery with good reason to believe that these promises can be kept without unnecessarily straining the organization of the plant.

The matter of showing samples of stock, composition and dummies to prospective customers is one which also naturally falls to the part of the estimator, and a practice of this kind will be found valuable in dealing with that class of customers who are not familiar enough with printing to buy it intelligently without first seeing some representation of the job which they expect to receive. The salesman can be materially helped by supplying them with these samples and dummies to submit to their customers in connection with the price made upon work, and salesmen and estimators should work together along this line as harmoniously as possible.

In estimating upon work on which competitive bids have been asked the wise estimator will look at the job

in question not only from the standpoint of his own plant, its costs and its equipment, but also from the standpoint of the competitive plants which he believes are bidding upon this work. He should be more or less familiar with the equipment, prices and methods of estimating of his brother competitors so that he may be able to estimate fairly well on any job in the way in which they would do so. This will help him in securing work which he could not get in any other way.

When sealed bids are asked for, these bids should be made specific as regards the character of the work which it is intended to deliver at the prices quoted. No matter what the specifications may call for, state in your bid just what kind of a job you have estimated upon and the price for this work described. If you follow this plan in making sealed bids, you will never put your house to the trouble or possible loss which is sometimes occasioned by a loosely constructed bid which does not meet the requirements of the specifications.

Occasionally a bid on work has to be revised to meet some changed condition, such as a cheapening of the quality of the paper stock to be used, a change of the size or number of pages, or other matters which the prospective customer may demand upon the job. In such cases the safe plan is to make your revised bid upon the same basis of profit as the original quotation, for if your original price was not interesting in some way to the buyer, he would not ask you for a revised bid under the new and changed conditions. In my own personal experience, I have usually found that I can secure a better profit on the

revised bid than on an original quotation, altho this would not necessarily be true in all cases.

Every estimator should make it a practice to check over his estimates after they have been made, if the job is one amounting to any considerable sum of money. Mistakes will happen, and it is very easy to overlook an item of cost in making an estimate that may very possibly be noted and corrected in going over the items the second time. On large work I find it advantageous to have one of the other office men check over my estimates, and I accommodate him in the same way by checking over his work. Every man must necessarily take a different viewpoint of a job, and an omission or error in an estimate which can not be seen by the original maker thereof may readily be noted and corrected by the second party who is competent to do this sort of work.

The handling of mail orders and inquiries is one of the hardest things that comes before the estimate man. Persons who write to a printing house for prices or ordering work are very prone to omit some of the most important details of information concerning the job, and it frequently falls to the lot of the estimator to supply this missing information, or to correspond with the parties in an endeavor to secure accurate specifications from them. In handling work of this kind and the correspondence necessarily incident to it, the estimator should be more than usually careful in submitting a price to make his own specifications on the job which he is quoting upon. The sending of samples of paper, type-faces, and of dummies is particularly valuable in handling mail orders, and

the small expense which this work occasions is more than offset by the satisfactory service which you are able to render to the customer, and which will in most cases be thoroly appreciated in the long run. The man who handles these mail orders must often be a good guesser as well as a good estimator, and if he is able to guess correctly nine cases out of ten on the many varied and puzzling propositions which come to him, he may consider himself as unusually successful in this line of work.

Young estimators should try to avoid falling into the error of using in their work time and speed of men and machines which is not the average time of production as shown by the cost records. A careful average of time on various kinds of work should be secured, and in cases of doubt a lower rather than a higher speed than the average should be used, so as never to fall into the common error of estimating a lower cost per hour on any kind of work than the cost records show. If the cost per hour of a certain kind of work is one dollar, you can not change this cost and estimate the time at eighty-five or ninety cents per hour on a certain job. It is far better to cut the profit on this job than to delude yourself into thinking that because you must make a low estimate on the work you can change with a stroke of your pencil the cost per hour of any operation entering into the job.

CHAPTER TEN

ESTIMATOR AND SALESMAN

The Harmonious Relation They Should Bear to Each Other and to the House They Represent

THE estimator in the printing plant is placed in a peculiar position. He is the buffer, who must stand between the hard knocks and attacks of the customer and possibly the salesman on the one hand, and the attitude of the house which he represents in their natural and proper effort to secure a profit on work and make dividends for the stockholders at the end of the year. This position is often a hard one for him to fill with satisfaction to his employers and pleasant relations with the salesmen and heads of the departments at the same time. The salesman will often seem to ally himself on the side of the customer in his relations with the estimator, and such a condition makes it depend upon the estimate man to protect the reputation and profits of his house against those who should be, and who perhaps at heart are, as interested in its success as himself. In speaking of this condi-

tion of affairs I refer to a plant where the salesmen do not make their own estimates, but bring them into the office for the estimator to make the price which shall be quoted upon the work. It should be the part of the estimator in all cases to act harmoniously with all those with whom he comes in contact insofar as it lies in his power. The head of the house, the estimator, the heads of departments and the salesmen should all be mutually helpful to one another, and if this is not the case, something is radically wrong somewhere. In no other business is it more important that a proper *esprit de corps* should exist between these various units of the business, and the estimator seems to be the keystone about which these relations group themselves.

The estimate man is frequently required to read the customer's mind, often thru the medium of the salesman, for he may never meet personally the customer upon whose work he estimates; and all of his knowledge of the requirements and of the personal characteristics of the patron come thru the salesman who calls upon him. The estimator is frequently required to get the specifications from the salesman instead of from the customer direct, and he should endeavor to encourage the salesman to provide him with as full and accurate information as possible in all cases, which will help greatly in making correct estimates and in securing work at a profit for the house.

It is an open question in the trade as to whether salesmen should also estimate the cost and make the price upon work which they secure. Some successful master printers contend that this is the proper method of conduct-

ing business with the public, while others equally as successful contend that much better results are secured by having one or more competent estimators in the office who estimate the cost of all work and make the price upon it. My opinion of this question is that circumstances alter cases. If a salesman is thoroly competent to estimate and to make prices upon work, I see no reason why he should not be permitted to do so, provided that he keeps in such close touch with the operation of the plant which he represents as to be able to know at all times the conditions of work in the plant, so that he may not make the mistakes which he might do if not thoroly familiar with the details of operation from day to day. In many cases, however, a man may have marked ability as a salesman of printing, but very little knowledge or ability in the making of estimates. In such case he should certainly not be allowed to quote prices, except such as are furnished him by the office estimator, with the exception of prices which might be established on certain classes of small work, such as envelops, letterheads, cards and other items, upon which a schedule can be made up and maintained. Another question which may properly be considered is whether estimators should also be employed as salesmen, thus dealing with the public direct. Perhaps the same general view of this question might obtain as that suggested in relation to the salesman making estimates. Conditions in the plant should govern the work of the estimator, and in all except the largest plants of the country the estimators are required to devote more or less of their time to dealing with the buying public direct, in making

sales to them. There is a certain advantage which accrues to an estimator in talking to a customer and in selling printing to him. He gets a different point of view from that which he could obtain if he did not meet the public in this way. There is some knowledge which we cannot obtain by shutting ourselves in a room and doing our work from day to day in solitary state, not mingling with business people nor getting their viewpoint of our business.

The estimator should always consider the competition which he may have to meet on any job, and he should fortify himself as far as possible to meet this competition by becoming familiar with the competitive plants and their methods of estimating, producing work and dealing with the public. All this information which he can gather he can turn to account in many ways, which will redound to the credit and profit of his house.

An estimator owes to the house which he represents his unfailing allegiance. He should estimate for a profit in the same spirit he would if he owned the plant entirely himself. His personal interest should be with the house, and if it is not he can not be the valuable employee which his position should make of him; and his work will not receive the appreciation which it will do at the hands of every right and high-minded employer. There is no position on the pay-roll of a printing plant which carries more weight and responsibility than that of the estimator, who is daily and hourly called upon to use his judgment and to make decisions which involve in almost every case a profit or loss for his house. This responsibility he should be in a position to meet and carry,

and in most cases he will find that if he shows a spirit of initiative and ability, his work will not go unrewarded, altho it must be admitted that the work of estimating is not generally paid for at the high rate which its responsibilities and importance would seem to indicate.

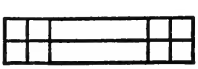
On the other hand, the house which employs an estimator owes to him its backing in everything which he does. If a man is competent to hold the position of estimator with a house, he should have the unfailing help and assistance of the house in whatever he does. When an estimator makes a price, it is a mistaken policy for another representative of that house to quote to the customer a different price from the one originally made. It not only causes the estimator to lose confidence in his own ability, but it arouses in the mind of the prospective buyer a feeling of uncertainty and doubt as to whether he is ever getting the bottom price on his work.

Referring to the subject of salesmen making estimates upon work which they handle, I believe that all salesmen should be taught the first principles, at least, of correct estimating, and the schools of estimating, which have been established by local branches of the United Typothetæ of America in various cities in this country, should be of inestimable value to salesmen in the cities where they are located. Many salesmen are attending these estimating schools and are deriving much benefit from these sessions, which are usually conducted by some experienced and competent estimator, who is familiar with the work in hand and who is able to give to young and inexperienced salesmen information which they can

put to practical and constant use in their daily contact with the public.

The office estimator is often required to show the salesman many of the things which he should know, for it will not do for a representative of a printing house to confess ignorance upon a subject upon which he may be asked for information by his customer, unless the question is one regarding an intricate subject upon which he might well admit his ignorance. He should be armed with as complete information as possible to assist him in dealing with his patrons, and this information can be best given him by the office man who does the estimating of the house.

Salesmen who travel on the road and sell printing must necessarily be more familiar with the subject of estimating than city salesmen, who have more ready and frequent connection with the house. Selling on the road requires a higher type of salesman and a more complete knowledge of estimating, and salaries for this kind of work are usually higher than those paid to city salesmen, who have easy access to the information of the office.



CHAPTER ELEVEN

FORGET-ME-NOTS FOR ESTIMATORS

Things to be Remembered in Estimating Costs and Quoting Prices

FORGET, and the house loses money. In no other business is the necessity of attention to small details so important, it seems to me, as in the printing trade. The smallest lapse of memory or a momentary forgetfulness on the part of the estimator, and a damage is done which may amount to a considerable loss of money to the house he represents, as well as causing him to lose to a certain degree his own self-respect in a business way, and shaking his confidence.

The estimator must be continually upon his guard against overlooking any of the details which enter into an estimate. Constant vigilance is the price of success in the estimator's occupation, and the slightest lapse of attention may bring serious results.

I believe that every estimator suffers more or less from the thought that possible errors may creep into his esti-

mates unknowingly, and certainly without intent; but the best that he can do is to guard himself in every possible way against omissions and errors which effect his work. Of first importance is to always secure as exact specifications as possible, and where these are not furnished, to base the price upon specifications furnished by the house and submitted to the customer with the quoted price. This will often be the means of saving misunderstandings and possible loss thru the customer's not expressing himself correctly or not furnishing complete and accurate information regarding the job on which he asks a price.

The estimator must never forget and he must never overlook details of cost which enter into an estimate. The checking up of the items of cost after the estimate is finished is a great help in guarding against errors of this kind, and where there is more than one estimator in an office, it is a good plan for one person to check over the figures of another on work amounting to several hundred dollars, for one man will often make the same mistake twice in checking over his own work, whereas another estimator will easily see the error.

"Remember the ink." Let this little reminder be constantly before you in estimating work of any kind beyond commercial printing. This little item of ink is one on which many printers trip to their own loss, but I believe that the trouble can be very largely done away with by the estimator, if he will give the subject the time and study it requires. If the press-room is using fifty dollars' worth of ink in a month, this ink should be accounted

for—every dollar's worth of it and every ounce. It is, of course, impossible to estimate the exact amount and cost of the ink used in printing a small job, such as five hundred cards, but on all large work the item of ink should enter into the estimate, and the probable cost should be calculated as exactly as possible. Even after the job has been secured, the ink should not be lost sight of, but the amount used on the first thousand or two impressions should be learned, and in case this is more than was estimated, some change can often be made by substituting a cheaper ink or mixing it in a different way so as to reduce the cost or quantity that will be used on the balance of the job.

The matter of slipsheeting is closely allied with that of the ink. All fine halftone work must necessarily be slipsheeted, but there is a great deal of work produced for advertising purposes that cannot be slipsheeted, because of the added cost; and this necessitates careful handling and estimating of the quantity of ink and speed of press, etc., which will produce a result satisfactory to the customer without slipsheeting. The cost of slipsheeting can be learned from the records of the press-room, and the estimator should remember that slip sheets must be taken out as well as put in, and must cover both of these operations in his cost.

In book work the size and weight of paper to be used, the size of the type and of the type-page must be very carefully considered, as a difference of one-half an inch in the size of the stock may make an important change in the cost, and a difference of two hundred ems of mat-

ter to the page on a large book may amount to half the profit on the job. The estimator is frequently required to state the number of pages of printed matter which a certain amount of manuscript copy will make, and this is sometimes difficult on account of the character of the manuscript. The only exact way to estimate the number of pages which a certain amount of copy will fill is to count the words, then compare the number of words with a table showing the number of words to the square inch of printed matter of the type in which the job is to be set. A table of this kind or a scale approximating the same thing is necessary for every estimator, and he should remember to allow liberally for headings, short pages, cuts, etc. If certain copy would seem to fill fourteen or fifteen pages, estimate it as sixteen. You cannot run fifteen pages in a book and fourteen will cost as much or more than sixteen.

In selecting type to be used on a job, be certain that your plant has the equipment to produce work of this type. A specimen book of the type fonts in the shop will be found valuable, and the size of each font should be marked, so that you may easily know whether you have sufficient type to produce a job.

In estimating work which is to be run on automatic feed presses from curved electrotypes, don't forget that a plate stretches when it is curved. I have seen cases where it was necessary to reset a job and make new plates or to discard all the stock for a job, because the curving of the plate had stretched the form so that it would not go on the paper. An ordinary electrotype stretches about six

points to the inch, and this is a good rule to go by, altho there is a difference in the amount of stretching between a large plate and a small one.

Another small but important detail which should never be forgotten is the trimming of the page on a book, and proper allowance should always be made for this purpose. As a general statement, allow one-fourth inch on every side for the trim, and remember that in trimming a folded edge, the knife takes off just twice as much as it does from a flat sheet. You can not print a book with a page six and one-fourth by nine and one-half from twenty-five by thirty-eight inch stock, and the wise estimator will be extremely careful in selecting the size of paper to be used.

In estimating the time required for the make-up of pages, remember that the make-up for two or more colors requires more time than for one color, as the color forms must register accurately with each other. My experience leads me to believe that as a general proposition the following holds true: If a printer can make up four pages of one color work in one hour, he will usually make up about one and one-half pages of two color printing in the same length of time. This, of course, depends very largely upon the character of the work, but is based upon ordinary two-color printing, where the headings or cuts are run in a second color. In estimating folding you should be certain whether the job is to be folded by machinery or by hand, and when you have correctly settled this point, you should make sure that the work is done in the way that it should be in the bindery whenever possible.

The subject of numbering deserves consideration, because numbering is done both in the press-room and in the bindery. Don't make the mistake of estimating on press-room numbering, if the work is of such character that it can not be done in this way. Numbering machines for use on presses usually number consecutively, changing automatically from one number to the next, and for this reason you can not press number a sheet of say four coupons which are to be numbered consecutively thru a book. The first sheet would number one, two, three, four; but on the second sheet, where the number five should occur, the number two would appear. For this reason, work of this kind is usually done in the bindery with hand or power numbering machines.

Perforating is also done in the press-room and in the bindery. Press-room perforating done at the same time that the form is bound is, of course, much cheaper than the bindery work, and a good plan to follow is to estimate this press perforating on cheap work, such as business forms, which must be sold at a low price. Bank checks, drafts, certificates and other work of a higher grade should be perforated in the bindery, and the estimator should be familiar with the comparative value of round hole and slot perforating, if both these kinds of work are done in the house he represents.

The estimator should never allow himself to be inveigled into quoting a price on work without seeing the copy. Especially is this true of circulars, poster work and other jobs of printing for advertising purposes. In estimating the cost of an advertising program for instance,

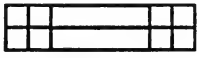
remember that the more advertisements there are on a page, that is, the smaller the advertisements are, the more will be the cost of the composition on that page, because the advertiser will usually submit about the same amount of copy for an advertisement of this kind, whether his space is large or small. If the space is large the cost of composition is small, but if his space is small, the matter must be set to go in the space and will be correspondingly higher. Advertising men frequently submit to the printer a lay out, as it is called, of a circular without showing copy, but the printer should protect his own interests by insisting on seeing all of the copy which is to go into the spaces marked, before submitting a quotation on the work.

Proofreading is an item which should not be overlooked in the estimating of a book job or in work of considerable size, and it should also be remembered that many jobs must be proof read thruout twice before printing, which would double the original time required.

Estimating is coming to be an exact science, and, as such, an estimate should include every item of cost entering into the job. You can not afford to overlook any detail, and it is better, if you are not sure of your information on any department of work, to estimate its cost as nearly as possible, rather than to ignore the item.

The successful estimator must remember the jobs upon which he makes prices, even after the work is secured, for it is important that every part of the work be done in the manner in which it was intended it should be done, if possible. Circumstances may necessitate running

a small job on a large press, but this should be obviated whenever possible, and to this end the estimator should work in harmony with the salesmen and with the heads of all departments.



CHAPTER TWELVE

TOOLS AND TABLES

Time Saving Devices for the Convenience of the Estimator and How to Use Them

ESTIMATORS are usually busy men, and in order to succeed in their chosen vocation, must learn to do their work speedily as well as accurately. In addition to increasing the output of the day's work, quick estimates impress a customer favorably. Prospective buyers do not like to be kept long waiting for estimates, and so little does the average buyer understand the methods of arriving at printing costs that nine out of ten callers would show no surprise whatever if, when they asked for a price, the estimator should take from his desk a book, turn to a certain page, and without any hesitation or delay, state exactly what the price would be on the job in hand. Such quick action as this cannot of course obtain, except on such small jobs as letterheads, cards, envelops and other small items of commercial stationery on which there may be an established price, but the estimator who has con-

venient tools and tables with which to do his work, can make quicker estimates, give customers better satisfaction and add to his own value and importance, than he can do if he is not thus equipped.

Of first importance in these tools of his trade, I place a combined price and cost book, preferably of the loose-leaf style, of his own manufacture. In this book, he can set down from time to time as the information comes to hand, various details of the cost of manufacture, correct selling prices that he has verified from the cost records of the shop and hundreds of small items that are too much of a tax on the memory. All this information should be indexed alphabetically thru the book for ready reference.

My own personal experience with a book of this kind shows that the following subjects can be thus covered in a way intensely practical and convenient:

A list of the presses in the plant with numbers, styles and size of forms that can be printed on them.

The court rules for printing briefs in effect in the territory covered.

Samples of all the punched holes that can be produced in the bindery, a sample of each of these holes punched on one sheet.

A table showing the selling prices of small pamphlets for quick reference. This table, which is shown, is not intended to be an arbitrary price-list, but the prices are high enough for most parts of the country so that they can be safely followed when a prospective buyer wants an approximate price in a hurry.

A table of the number of words to the square inch of

printed matter, also shown, for quickly estimating composition.

A table of the comparative weights of all kinds of paper.

A table showing the number of envelops of different sizes that can be cut from different sizes of sheets of stock.

A table showing the amount of stock needed for any job.

A table of standard sizes of envelops, cards, tags, letterheads, noteheads, billheads and statements, etc.

A list of the minimum selling prices on various kinds of work, if such a schedule is in use in the territory covered.

A table showing the delivered cost of the common sizes and styles of envelops carried in stock or largely used.

The selling prices of envelops in lots from five hundred to ten thousand, printed in one color, on the various grades and sizes of envelops frequently sold.

Samples of various kinds of cuts, zinc etchings, copper and zinc halftones in various screens to be shown to customers in talking illustrations to them.

Illustrations of various styles of bookbindings for the same purpose. An ocular demonstration of this kind will often save lengthy explanations and give the customer a much better idea of his job than a wordy description.

Any exclusive papers carried in stock should also be listed in the price book with the cost, delivered, of each grade. This information can be made more useful by adding to it the sizes and weights carried with the approximate number of reams of each on hand. This information must be frequently revised in order to keep it reliable.

Outside of the price and cost book, probably the one most essential tool of the estimator is a standard line

gage showing the space occupied by solid and leaded type of all sizes from six-point up to eighteen-point.

A type specimen book of all the type in the shop is extremely useful, and if this is also made to show the size of each font it becomes still more valuable. In connection with this specimen book the large specimen books of the type foundries should be kept easily accessible.

A stock cut book of cuts and ornaments in the plant will also be found valuable, together with the stock cut books of various type foundries and supply houses.

An electrotype scale is almost a necessity in estimating work of this kind.

A book showing styles of type used on calling cards and society stationery will be found convenient and valuable in estimating and selling work of this kind.

All of the suggestions enumerated above have been used and found practical, useful and convenient. Many of them may already be familiar to some readers, but others who are making estimates daily do this work with but few of the helps suggested. Their estimates are the result of needless effort, oftentimes, and every estimator owes it to himself and to his employer to take advantage of all the short cuts that may be offered that will simplify and shorten the time necessary to do his work, which at its best is arduous and attractive only to those of keen mind, active brain and towering ambition.

For the benefit of estimators who may not have the various tables suggested at hand I am including several of those referred to and would recommend them for ready reference in practical every-day work.

TABLE OF WEIGHTS—Book, News and Wrapping

	22 x 32	24 x 35	24 x 36	25 x 38	26 x 40	28 x 42	30 x 40	28 x 44	30 x 44	32 x 44	40 x 48
22 x 32	lb	lb	lb	lb	lb	lb	lb	lb	lb	lb	lb
22 lb	..	26	27	30	33	37	38	38	41	44	60
25 "	..	30	31	34	37	42	43	44	47	50	68
30 "	..	36	37	40	44	50	51	52	56	60	82
35 "	..	41	43	47	52	58	60	61	66	70	95
40 "	..	47	49	54	59	67	68	70	72	80	109
50 "	..	60	62	68	74	84	86	87	93	100	136
60 "	..	71	74	80	88	100	102	105	112	120	164
24 x 35											
28 lb	23	..	29	32	35	39	40	40	44	47	64
30 "	25	..	31	34	37	42	43	44	47	50	69
24 x 36											
20 lb	16	19	..	22	24	27	28	28	30	32	44
25 "	20	24	..	27	30	34	35	35	38	41	56
28 "	23	27	.	31	34	38	39	40	43	45	62
30 "	24	29	..	33	36	41	42	43	46	49	67
35 "	29	34	..	38	42	48	49	50	52	57	78
40 "	33	39	..	44	48	54	56	57	61	65	89
45 "	37	44	..	49	54	61	62	63	68	74	100
50 "	41	48	..	55	60	68	69	71	76	81	111
60 "	49	58	..	66	72	82	83	86	91	98	133
25 x 38											
28 lb	21	25	25	..	31	35	35	36	40	41	57
30 "	22	26	27	..	33	37	38	38	41	44	61
35 "	26	30	32	..	38	43	44	45	48	52	71
40 "	30	35	36	..	44	50	51	52	55	59	81
50 "	37	44	45	..	55	62	63	65	69	74	101
60 "	44	53	55	..	66	74	76	78	83	88	121
70 "	52	62	64	..	77	87	88	90	97	103	141

	22 x 32	24 x 35	24 x 36	25 x 38	26 x 40	28 x 42	30 x 40	28 x 44	30 x 44	32 x 44	40 x 48
25 x 38	lb	lb	lb	lb	lb	lb	lb	lb	lb	lb	lb
80 lb	60	71	73	..	88	99	101	104	111	119	162
100 "	75	89	91	..	110	124	126	129	139	148	203
120 "	89	106	109	..	132	148	152	156	167	178	243
28 x 42											
38 lb	23	27	28	31	34	..	38	39	40	46	62
40 "	24	28	29	32	45	..	40	41	44	48	65
45 "	27	32	33	36	40	..	46	47	51	54	73
50 "	30	36	37	40	44	..	51	52	56	60	82
60 "	36	43	44	48	53	..	61	63	66	72	98
70 "	42	50	51	57	62	..	71	73	79	84	114
80 "	48	57	59	65	71	..	82	84	90	96	131
100 "	60	72	74	80	88	..	102	105	112	120	164
120 "	72	86	88	97	106	..	122	126	135	144	196
28 x 44											
60 lb	34	41	42	46	50	57	58	..	64	68	93
70 "	40	48	49	54	59	67	68	..	75	80	109
80 "	46	54	56	62	67	76	78	..	86	91	125
100 "	57	68	70	77	84	95	96	..	107	114	150
120 "	68	82	84	92	100	114	116	..	128	136	186
140 "	80	96	98	108	118	134	136	..	150	160	218
160 "	92	108	112	124	134	152	156	..	172	182	250
32 x 44											
60 lb	30	36	37	40	44	50	51	52	56	..	82
70 "	35	41	43	47	52	58	60	61	66	..	95
80 "	40	47	49	54	59	67	68	70	72	..	109
100 "	50	60	62	68	74	84	86	87	93	..	136
120 "	60	71	74	80	88	100	102	105	112	..	164
140 "	70	83	86	94	104	116	120	122	132	..	191

SHOWING NUMBER OF ENVELOPS IN DIFFERENT SIZES CUT FROM SHEETS OF VARIOUS SIZES

NAME OF PAPER	COMMERCIAL			OFFICIAL						BARONIALS		
	SIZE NUMBER	3½ x 6	3⅝ x 6½	3¾ x 6¾	3⅞ x 8¾	4⅛ x 9½	4⅜ x 10⅜	4⅝ x 11	5 x 11⅜	3¾ x 4¾	4⅛ x 5⅛	4½ x 5¾
		6¼	6¾	7	9	10	11	12	14	4 B	5 B	6 B
Demy	16 x 21	5	4	4	3	2	2	2	2	6	5	4
Folio	17 x 22	6	5	4	4	3	2	2	2	6	6	4
Medium	18 x 23	6	5	5	4	3	2	2	2	7	6	5
Royal	19 x 24	7	6	6	4	4	3	2	2	9	6	6
Double Cap	17 x 28	7	6	6	4	4	3	3	2	8	7	6
Medium	20 x 25	8	7	6	4	4	3	3	2	10	7	6
Wedding	21 x 33	11	10	9	7	6	5	4	4	15	11	8
Double Folio	22 x 34	12	11	10	8	6	5	5	4	15	12	....
Double Royal	24 x 38	14	14	12	9	8	6	6	5	18	15	....
	28 x 34	16	13	13	9	8	6	6	5	20	14	....
	22 x 28	10	9	8	6	5	4	4	4	12	9	....
	23 x 32½	12	11	10	7	6	5	5	4	15	12	9
	24 x 36	14	13	12	8	8	6	6	5	16	15	12

REGULAR SIZES

A table in use in a western city

ENVELOPS

Bank

No. 6 ..... 4⅛ x 6¼
No. 6¼ ..... 4⅛ x 6½
No. 6½ ..... 3⅝ x 6½
No. 6¾ ..... 3⅝ x 6½
No. 7 ..... 4 5-16 x 7⅛
No. 8 ..... 5 x 7½
No. 9 ..... 3 15-16 x 8⅞
No. 10 ..... 4⅛ x 9½
No. 11 ..... 4½ x 10⅜
No. 12 ..... 4¾ x 11
No. 14 ..... 5 x 11½

Pamphlet

No. 2 ..... 6½ x 10
No. 3 ..... 6⅜ x 10½

Baronial

No. 4 ..... 3⅝ x 4 11-16
No. 5 ..... 4 3-16 x 5 3-16

Commercial

No. 3 ..... 2 11-16 x 4¾
No. 4 ..... 2⅞ x 5¼
No. 5 ..... 3⅛ x 5½
No. 6 ..... 3⅜ x 6
No. 6¼ ..... 3½ x 6
No. 6¾ ..... 3⅝ x 6½
No. 7 ..... 3¾ x 6 13-16

Drug

No. 1 ..... 1¾ x 2⅞
No. 2 ..... 2 1-16 x 3½
No. 3 ..... 2 5-16 x 3⅝

Photograph

Open End

Cabinet ..... 4 13-16 x 7¼
Wide Imperial Cabinet ..... 5⅝ x 7½

Portfolio

No. 1 ..... 5½ x 8⅝
No. 2 ..... 6¼ x 8⅝
No. 3 ..... 6 1-16 x 9 9-16

Reversible

No. 1 ..... 4 x 6¼
No. 2 ..... 5 x 7½

Tag and Ore

1 oz. ..... 3 x 4⅜
2 oz. ..... 3½ x 5¼
4 oz. ..... 4 x 7

Coin

Open End

No. 1 ..... 2¼ x 3½
No. 2 ..... 2½ x 4¼
No. 3 ..... 3 x 4⅞
No. 4 ..... 2⅞ x 5¼
No. 5 ..... 3⅛ x 5½
No. 6 ..... 3⅜ x 6¼

Policy

Open End

No. 10 ..... 4⅛ x 9½
No. 11 ..... 4½ x 10¾
No. 12 ..... 4¾ x 10⅞
No. 14 ..... 5 x 11½

Theater

No. 3 ..... 1⅞ x 4½

Pay

No. 2 ..... 2½ x 4¼

Wallet Flap

"B" Hilltone ..... 3 x 4½
"D" " ..... 3⅜ x 5 3-16
"D" Lakewood ..... 3⅜ x 5 3-16
"E" Hilltone ..... 3 9-16 x 5 9-16
"E" Astor ..... 3 9-16 x 5 9-16

REGULAR SIZES. *Continued.*

GOVERNMENT STAMPED ENVELOPS

No. 1 ..... 2⅞ x 5¼	No. 8 ..... 4⅛ x 9½
No. 2 ..... 3¼ x 5½	No. 9 ..... 4⅜ x 10⅛
No. 3 ..... 3⅜ x 5⅞	No. 10 ..... 3 9-16 x 4⅝
No. 4 ..... 3⅝ x 5⅞	No. 11 ..... 4¼ x 5¼
No. 5 ..... 3½ x 6 5-16	No. 13 ..... 3¾ x 6¾
No. 6 ..... 3½ x 6 5-16	No. 14 ..... 3¾ x 6 5-16
No. 7 ..... 3⅞ x 8⅞	

COMMERCIAL CARDS

Square and Round Corner Cards are the same size, the only difference being the corners on the Round Corner Cards

No. 5 ..... 3 11-16 x 2	No. 63 ..... 3⅞ x 2⅜
No. 7 ..... 3 13-16 x 2⅜	No. 70 ..... 3¾ x 2
No. 8 ..... 4 1-16 x 2 7-16	No. 84 ..... 3 7-16 x 1 15-16
No. 9½ ..... 4½ x 2 11-16	No. 88 ..... 3½ x 1 15-16
No. 36 ..... 5¼ x 3	No. 117 ..... 3 x 1 11-16
No. 48 ..... 4 9-16 x 2 11-16	Postal ..... 5¼ x 3
No. 55 ..... 4 3-16 x 2 7-16	

Government Postal ..... 3¼ x 5½. Address space ..... 5½ x 1⅝
Government Dbl. Postal ... 3¼ x 5½. Address space ..... 5½ x 1⅝
Opened ..... 6½ x 5½

ENGRAVED CARDS

No. 11 ..... 3 3-16 x 1 13-16	No. 52½ ..... 3 3-16 x 2¼
No. 12 ..... 3 7-16 x 2 1-16	No. 53 ..... 3¼ x 2 5-16
No. 13 ..... 3 11-16 x 2¼	No. 56 ..... 3 x 1 11-16
No. 15 ..... 3 x 2 1-16	No. 58 ..... 3⅜ x 1 15-16
No. 16 ..... 3¼ x 2 5-16	B ..... 2 13-16 x 2⅛
No. 17 ..... 3⅛ x 2⅝	E ..... 3⅝ x 2 11-16
No. 20 ..... 3⅛ x 1 9-16	D ..... 3 7-32 x 2 15-32
No. 51 ..... 3⅛ x 1 17-32	Queen ..... 3 3-16 x 2 7-16
No. 52 ..... 2⅞ x 2 1-16	

TICKETS

Die Cut Meal Tickets .. 3 11-16 x 2⅛	Milk Tickets ..... 2⅜ x 1¼

FANCY STATIONERY

No. 71—8½. Size of page ..... 5¾ x 5¾
No. 71—11. Size of page ..... 5½ x 7⅛
No. 71—6¼. Size of page ..... 5¾ x 6½

REGULAR SIZES. *Continued.*

BILL HEADS AND STATEMENTS

All Regular Bill Heads, whether 1-6 (4⅜ x 8½), ⅛ (9⅛ x 8½), ¼ (7 x 8½) or ½ (14 x 8½), have the same depth head of 2¾ inches and are 8½ inches wide

Statements	5½ x 8½ with 2¾-inch head
Yankee Statements	3⅜ x 8½ with 2¾-inch head
Gem Statements	5½ x 5⅔ with 2¾-inch head
Head and Tail Statements	5½ x 8½ with 2¾-inch head and 1¼-inch tail
Hotel Statements	5⅜ x 11 with 2¾-inch head
Grocers' Statements	4 x 9½ with 2¾-inch head

LETTER AND NOTE HEADS, Etc.

Letter Head	8½ x 11 with 2½-inch head
Memo Head	8½ x 7⅛ with 2½-inch head
Packet Head	6½ x 9 with 2½-inch head
Note Head	5½ x 8½ with 2½-inch head
Hotel Head	5⅜ x 11 with 2½-inch head

STANDARD TAG SIZES

Sizes here noted are the actual space from the edge of the eyelet to the end of tag

No. 1	2⅛ x 1⅜	No. 5	4⅛ x 2⅜
No. 2	2⅝ x 1⅝	No. 6	4⅝ x 2⅝
No. 3	3⅛ x 1⅞	No. 7	5⅛ x 2⅞
No. 4	3⅝ x 2⅛	No. 8	5⅝ x 3⅛

SIZES OF FLAT WRITING PAPER

Foolscap or Small Cap	13 x 16	Super Royal	20 x 28
Cap	14 x 17	Double Demy, narrow	16 x 42
Demy	16 x 21	Double Demy, broad	21 x 32
Folio	17 x 22	Double Folio	22 x 34
Medium	18 x 23	Double Medium, narrow	18 x 46
Royal	19 x 24	Double Medium, broad	23 x 38
Small Double Cap	16 x 26	Double Royal	24 x 26
Double Cap	17 x 28	Cardboard, full sheet	22 x 38

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